

BOREHOLE LOGS


BH1 THROUGH BH21



Project No.: 6609	Boring	SB9	Sheet
Client/Project: Gregg Refining	Well ID		
Name of Geo/Eng.: Laura Rectenwald	Location Map:		
Name of Driller: Jackie Raines no. 54661	See original.		

Location: Premier Rd. Longview, TX	Date/Time (start): 4/10/14 11:55
Drilling Co.: Geoprobe 7720 DT	Date/Time (finish): 4/10/14 14:00
Drilling Equip.: Precision Probe & Drilling	Depth (bore): 20 (Well): 20
Sampling Equip: Macrocore	Depth to Water: (1st) (Static)
Inspector:	Screen Interval: NA Top of Casing: NA
	X: Y: Elev:

Well Const				OVA (ppm)	Blow Cnt	% Rec	Snmpl Run	Depth	Grab Sample	Composite Sample	Description
	0-0.5										topsoil
	0.5-1.5	gr sa	cl	1.5-1.7				1			red orange
	1.5-2.5	gr sa	si	2.2							brown wet organic matter
						%		2			gray with yellow reduced
	2.5-4.5	sa	si	2.5-2.7							
				1.6				3			
								4			
	4.5-5	sa	si	4.5-4.7							gray, solvent or petroleum odor observed
				30.9				5			A-Grab: 4-4.5
	5-7			5.5-5.7							A-Comp: 1-5
		gr si	sa	2.8		%		6			wet
	7-11							7			
		sa	cl	7.5-7.7							gray with red very stiff
				18.7				8			
											B-Grab: 7.5-8
								9			B-Comp: 6-10
				9.5-9.7							
				1.8		%		10			
				10.5-10.7							
	11-11.5	gr si	sa	4.7				11			yellow and gray loose
	11.5-14										
		si	sa					12			yellow and gray in dense
				12.5-12.7							
				2.0				13			
	14-15	si	cl			%		14			dark gray / yellow Hard
	15-17	si	cl					15			dark gray very stiff
				15.5-15.7							
				0.8				16			
	17-20	sa	si					17			very dense dark gray
				17.5-17.7							
				3.2		%		18			
				19.5-19.7				19			C-Grab: 19.5-20
				1.0							C-Comp: 16-20
								20			
								21			
								22			
								23			
								24			

				Project No.: 6609				Boring	SB10	Sheet	
				Client/Project: Gregg Refining				Well ID			
				Name of Geo/Eng.: Laura Rectenwald				Location Map:			
				Name of Driller: Jackie Raines no. 54661				See original.			
Location: Premier Rd. Longview, TX				Date/Time (start): 4/10/14 9:30							
				Date/Time (finish): 4/10/14 11:15							
Drilling Co.: Precision Probe & Drilling				Depth (bore): 20 (Well): 20							
Drilling Equip.: Geoprobe 7720DT				Depth to Water: (1st) (Static)							
Sampling Equip: Macrocore				Screen Interval: Top of Casing:							
Inspector:				X:				Y: Elev:			
Well Const				OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	0.05	sa	si								top soil tan
	0.5-0.7			1.5-1.7				1			orange and red fill well compacted
		gr 4	sa	2.4							
				2.5-2.7		%		2			
				1.6				3			
				4.5-4.7				4			
				1.3							Plant road base
	top of screen at 5'			5.5-5.7				5			
				0.7							
						%		6			
				7.5-7.7				7			
	7.5-7.6			1.2							
	7.6-10	sa	si					8			organic matter
				9.5-9.7				9			tan v dense
				624.7							Comp A 6-9.5
	10-14	sa	sl	10.5-10.7		%		10			A grab 9.0 - 9.5
				23.8							red yellow white with gravel
								11			wet at 10-11, v stiff
											loose with gravel
				12.5-12.7				12			
				33.3							
								13			
	14-15	sa	cl			%		14			with gravel, yellow and gray
				14.5-14.7							Comp B 14-16
	15-17.5	gr sl	sa	25.5				15			tan, wet, M dense
				15.5-15.7							
				335.5				16			B grab 15.5 -16.0
	7.5-18	si	cl	17.5-17.7				17			dark brown v stiff
	18-20	si	sa	21.2		%		18			yellowish tan, wet M dense
				19.5-19.7				19			Comp C 16-20
				56.9							C grab 19.0 - 19.5
								20			
								21			
								22			
								23			
								24			



Project No.: 6609	Boring	SB11	Sheet
Client/Project: Gregg Refining	Well ID		
Name of Geo/Eng.: Laura Rectenwald	Location Map:		
Name of Driller: Jackie Raines no. 54661	See original.		

Location: Premier Rd. Longview, TX	Date/Time (start): 4/10/14 14:50
	Date/Time (finish): 4/10/14 16:10
Drilling Co.: Precision Probe & Drilling	Depth (bore): 20 (Well): 20
Drilling Equip.: Geoprobe 7720DT	Depth to Water: (1st) (Static)
Sampling Equip: Macrocore	Screen Interval: Top of Casing:
Inspector:	X: Y: Elev:


Well Const				OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	0.05	si sa									top soil tan
	0.5-2.5	cl	sa	1.5-1.7				1			orange red tan M dense
				0.6		%		2			
				2.5-2.7							
	2.5-5	sa	si	0.3				3			red, tan M dense
								4			red tan soft very moist
				4.5-4.7							
	5-7	si	sa	0.7				5			
				5.5-5.7							
	top of screen at 5'			1.1		%		6			reddish to yellow M soft very moist
	7-10	si	sa					7			A grab 5.5 - 6.0
				75-7.7							A comp 5-10
				0.3				8			
											yellow soft
				9.5-9.7				9			
	10-14.5	si	sa	0.4		%		10			
				10.5-10.7							
				1.2				11			B grab 10.50 - 11.0
								12			B comp 10-15
				12.5-12.7							
				0.6				13			
											very wet, very soft yellow and red
	14.5-16.5	cl	sa	14.5-14.7		%		14			
				0.1				15			
				15.5-15.7							very moist M dense
				0.7				16			
	16.5-20	si	sa								
				7.5-17.5				17			C comp 15 - 20
				1.0							
						%		18			
								19			
				19.5-19.7							C grab 19.0 - 19.5
				1.3				20			
								21			
								22			
								23			
								24			



Project No.: 6609	Boring	SB12	Sheet
Client/Project: Gregg Refining	Well ID		
Name of Geo/Eng.: Laura Rectenwald	Location Map:		
Name of Driller: Jackie Raines no. 54661	See original.		


Location: Premier Rd. Longview, TX	Date/Time (start): 4/9/14 11:45
	Date/Time (finish): 4/9/14 1340
Drilling Co.: Precision Probe & Drilling	Depth (bore): 20 (Well): 20
Drilling Equip.: Geoprobe 7720DT	Depth to Water: (1st) (Static)
Sampling Equip: Macrocore	Screen Interval: Top of Casing:
Inspector:	X: Y: Elev:

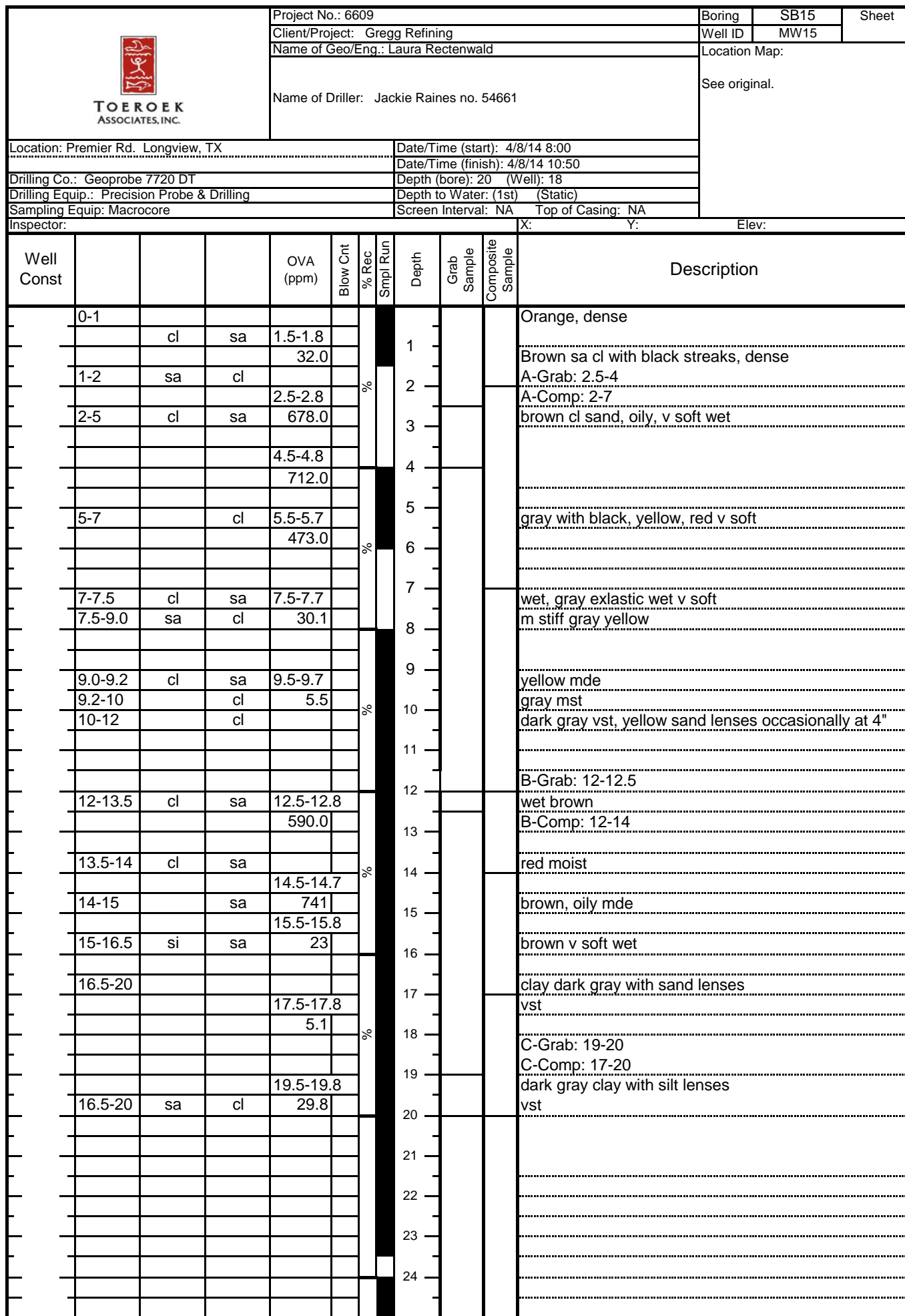
Well Const				OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	0-0.3	sa	si	1.5-1.7							top soil brown with organic matter
	0.3-2	gr cl	sa	2.2				1			orange, red M dense NO odor
	2-4.5	gr sa	cl								orange, gray, yellow, red very stiff
				2.5-2.7				2			
				1.5		%					A comp 2-4
								3			A grab
											No odor noted in any sample
				4.5-4.7				4			
				9.0							B grab
	4.5-9	gr cl	si	5.5-5.7				5			orange gray yellow red very dense
				7.1							decreasing gravel with depth, very dense
						%		6			B comp 4-6
											6-9 NO ODOR
				7.5-7.7				7			
				1.4							
								8			
	9-10.3	sa	si					9			yellow, orange, gray, very dense
				9.5-9.7							
	top of screen			1.0		%		10			
	10.3-11.3	si	sa	10.5-10.7							tan, wet loose
				0.8				11			
	11.3-12.5	si	cl								with fe gravel and silt laminae
								12			
	12.5-13.5	si	sa	12.5-12.7							wet M dense
				1.0				13			
	13.5-15	sa	cl								dark gray and yellow v stiff
						%		14			
				14.5-14.7							14-15 NO ODOR
	15-17	si	sw	0.8				15			
				15.5-15.7							dark gray v moist m dense
				1.4				16			
											16-18 NO ODOR
	17-18	si	cl					17			dark gray v stiff
				17.5-17.7							C Comp 17-19
	18-20	si	sa	1.2		%		18			dark gray, very moist
								19			
				19.5-19.7							C grab
				1.4				20			
								21			
								22			
								23			
								24			


	Project No.: 6609		Boring	SB13	Sheet
	Client/Project: Gregg Refining		Well ID	MW13	
	Name of Geo/Eng.: Laura Rectenwald		Location Map:		
	Name of Driller: Jackie Raines no. 54661		See original.		

Location: Premier Rd. Longview, TX		Date/Time (start): 4/10/14 7:07
		Date/Time (finish): 4/10/14 8:30
Drilling Co.: Precision Probe & Drilling		Depth (bore): 20 (Well): 20
Drilling Equip.: Geoprobe 7720 DT		Depth to Water: (1st) (Static)
Sampling Equip: Macrocore		Screen Interval: NA Top of Casing: NA
Inspector:		X: Y: Elev:

Well Const				OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	si	stgt	0-0.2								topsoil
				1.5-1.7				1			tan no odor
	2-3.5	cl	si	0.6		%		2			
				2.5-2.7							
				1.2				3			orange yellow m dense
	3.5-7	gr	sa cl								
				4.5-4.7				4			A-Grab: 4-4.5
				2.7							A-Comp: 2-5
				5.5-5.7				5			no odor
				2.8		%		6			
	7-9.5	cl sa	si	7.5-7.7				7			red orange m dense
				0.7							no odor
								8			
				9.5-9.7							B-Grab: 7.5-8
	9.5-12.5	gr	sa cl	0.5				9			B-Comp: 6-12
											m stiff
				10.5-10.7		%		10			dry
				0.7				11			
	12.5-17.5	cl	sa si					12			dark gray v dense
				12.5-12.7							no odor
				0.7				13			
				14.5-14.7		%		14			
				0.6							
		sa	si	15.5-15.7				15			dark gray wet but not a lot of water
				1.5				16			
	17-17.5		cl								dark gray
	17.5-20		si sa					17			dark gray m dense
				17.5-17.7							moist
				0.2				18			
				19.5-19.7		%					C-Grab: 19-19.5
				0.3				19			C-Comp: 15-20
								20			
								21			
								22			
								23			
								24			

	Project No.: 6609		Boring	SB14	Sheet						
	Client/Project: Gregg Refining		Well ID	MW14							
	Name of Geo/Eng.: Laura Rectenwald		Location Map:								
	Name of Driller: Jackie Raines no. 54661		See original.								
Location: Premier Rd. Longview, TX		Date/Time (start): 4/9/14 14:45									
		Date/Time (finish): 4/9/14 16:10									
Drilling Co.: Precision Probe & Drilling		Depth (bore): 20 (Well): 20									
Drilling Equip.: Geoprobe 7720 DT		Depth to Water: (1st) (Static)									
Sampling Equip: Macrocore		Screen Interval: NA Top of Casing: NA									
Inspector:		X:		Y:	Elev:						
Well Const				OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	0-0.5	sa	si								topsoil brown loose
	0.5-2		cl sa					1			orange red m stiff
	2-5		sa cl	1.5-1.7							red gray v stiff no odor
				0.1		%		2			
				2.5-2.7							A-Grab: 2.5-3
				1.2				3			A-Comp: 1-3
											B-Grab: 4-4.5
								4			B-Comp: 3-5.5
	5-7		sa cl	1.0				5			red gray v stiff no odor
				5.5-5.7		%		6			
				1.2							
	7-10.2		cl si					7			orange gray yellow v dense
				7.5-7.7				8			
				1.1							
								9			no odor
				9.5-9.7		%					
	10.2-12		si sa	0.8				10			tan wet v soft
				10.5-10.7				11			
				1.1							
	12-12.5		sa cl					12			yellow/gray very moist m stiff
	12.5-13	gr	cl sa	12.5-12.7				13			fe gravel m de
				0.8							
	13-14		si sa					14			yellow no odor
	14-15		si cl	14.5-14.7		%		15			dark gray
	15-17.5		si cl	0.2				16			dark gray silt lenses very moist
				15.5-15.7							
				0.3				17			dark gray no odor
	17.5-20		sa si					18			
				17.5-17.7		%					C-Grab: 19-19.5
				1.0				19			C-Comp: 17-19
								20			
				19.5-19.7				21			
				0.3				22			
								23			
								24			

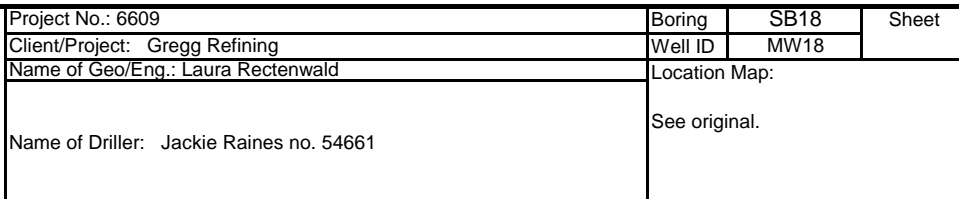


	Project No.: 6609		Boring	SB16	Sheet						
	Client/Project: Gregg Refining		Well ID	MW16							
	Name of Geo/Eng.: Laura Rectenwald		Location Map:								
	Name of Driller: Jackie Raines no. 54661		See original.								
Location: Premier Rd. Longview, TX		Date/Time (start): 4/8/14 11:40									
		Date/Time (finish): 4/8/14 14:45									
Drilling Co.: Geoprobe 7720 DT		Depth (bore): 20 (Well): 20									
Drilling Equip.: Precision Probe & Drilling		Depth to Water: (1st) (Static)									
Sampling Equip: Macrocore		Screen Interval: NA Top of Casing: NA									
Inspector:		X:		Y:	Elev:						
Well Const				OVA (ppm)	Blow Cnt	% Rec	Smp Run	Depth	Grab Sample	Composite Sample	Description
	0-18"										brown
		si	sa					1			moist, black brown loose
	1.5-2.5"	si	sa	1.5-1.7							
				1.2				2			orange yellow v stiff
	2.5-5	sa	cl	2.5-2.7							
				1.5				3			
								4			A-Grab: 4.5-5 A-Comp: 3-7
				4.5-4.7							
				1334.0				5			
				5.5-5.7							gray & pink v stiff
	5-7.0	sa	cl	682.0				6			
								7			
	7-7.2	Fe gravel		7.5-7.7							yellow-brown dense
	7.2-10	sa	cl	57.5				8			gray, yellow v stiff
								9			
				9.5-9.7							
				48.1				10			
	10-12	sa	cl	10.5-10.7							brown v stiff
	(10.7-11)			65				11			(wet) sand layer
											B-Grab: 11-11.5 B-Comp: 10-12
	12-15	sa	cl	12.5-12.7				12			alt layers of sand & clay, v stiff
	12-12.5		cl	4.5				13			brown
	12.5-12.8		sa								yellow
	12.8-15	sa	cl					14			6" alt layers brown v stiff
				14.5-14.7							
				7.2				15			
	15-17		sa	15.5-15.7				16			tan wet
				4.5							
				17.5-17.7				17			
				17.0							
	18-20							18			dark gray clay with silt lenses vst
		si	cl					19			
				19-19.5							C-Grab: 19-19.5 C-Comp: 17-20
				29.0				20			
								21			
								22			
								23			
								24			



Project No.: 6609	Boring	SB17	Sheet
Client/Project: Gregg Refining	Well ID	MW17	
Name of Geo/Eng.: Laura Rectenwald	Location Map:		
Name of Driller: Jackie Raines no. 54661	See original.		
Location: Premier Rd. Longview, TX	Date/Time (start): 4/8/14 16:00		
	Date/Time (finish): 4/8/14 1805		
Drilling Co.: Precision Probe & Drilling	Depth (bore): 20 (Well): 20		
Drilling Equip.: Geoprobe 7720DT	Depth to Water: (1st) (Static)		
Sampling Equip: Macrocore	Screen Interval: Top of Casing:		

Inspector:			X:			Y:			Elev:		
Well Const	Samples			OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
								1			gravelly silty sand tan w/orange
	0-2.0	si sa	1.5-1.7	209.9		%		2			Composite A 2-4
	5-Feb	cl sa						3			orange & tan very dense / A grab
								4			orange & tan
			4.5-4.7	296.1		%		5			orange & tan, wet, v soft
	5-May	gr cl sa	5.5-5.7	31.3		%		6			gray with orange mottles, moist, soft
	6.5-7.5	sa cl						7			gray with yellow nottles, v dense
	7.5-10	cl si	7.5-7.7	73.4		%		8			B grab
			9.5-9.7	15.2		%		9			
	15-Oct	gr cl sa si	10.5-10.7	12		%		10			gray with yellow mottles, M dense
								11			
			12.5-12.7	3.0		%		12			Composite B 10-15
								13			
			14.5-14.7	3.6		%		14			dark gray with silt lenses
	15-16.5	sl cl						15			dark gray, wet
	16.5-16.8	si sa	6.8					16			dark gray
	16.8-17.8	si cl						17			
			17.5-17.7			%		18			dark gray, moist
	17.8-	sa cl si	5.5					19			
			14.5-19.7	3.4		%		20			C grab
								21			C comp 17-20
								22			
								23			
								24			



Date/Time (start): 4/9/14 9:00

Drilling Co.: Geoprobe 7720 DT

Depth (bore): (Well): 20

Depth to Water: (1st)	(Static)
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Sampling Equip: Macrocore

Screen Interval: NA	Top of Casing: NA
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Inspector:

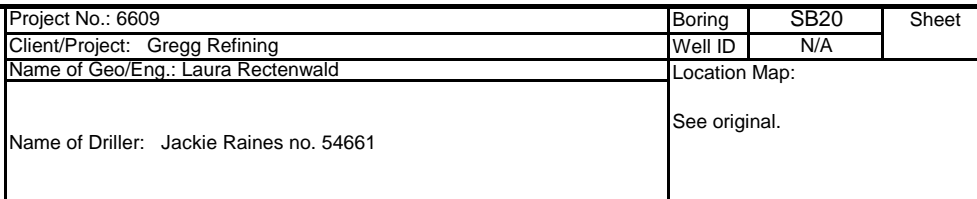
X:	Y:	Elev:
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Well Const			OVA (ppm)	Blow Cnt	% Rec	Smpl Run	Depth	Grab Sample	Composite Sample	Description
	0-2		gravel	1.5-1.7						parking lot
	2-1.5	sa	silt	0.5			1			brown
										tan and black. Very moist, odor, loose, oily feel
	2-5	si	sa				2			
				2.5-2.7						
				113.7			3			A-Grab: 2.5-3
										A-Comp: 2-5
				4.5-4.7			4			
	5-7	si	sa	105.7			5			tan very moist loose
				5.5-5.7						not oily
				31.6			6			odor not noticed
	7-8	sa	cl	7.5-7.7			7			brown with yellow, odor
				13.8						
	8-8.5		gr				8			ironstone gravel
	8.5-10.2	sa	cl	9.5-9.7			9			red & gray with yellow v stiff
				1.2						
	10.2-12.5	si	sa	10.5-10.7			10			brown very loose very wet
				28.4			11			
										B-Grab: 12.5-13
							12			B-Comp: 10-15
	12.5-13.5	sa	si	12.5-12.7						gray & yellow vde
				4.2			13			
	13.5-13.6		cl							brown v stiff
	13.6-14.2	sa	si				14			gray & yellow
	14.2-17.2	si	cl	14.5-14.7						dark gray vst
				1.4			15			
				15.5-15.7						
				1.7			16			
	17.2-18.5	sa	si				17			dark gray v dense wet
	18.5-18.8	si	cl	17.5-17.7						dark gray v stiff
	18.8-19.3	sa	si	1.4			18			dark gray wet v dense
	19.3-20	si	cl							dark gray v stiff
							19			C-Grab: 19-19.5
				19.5-19.7						C-Comp: 17-20
				1.1			20			
							21			
							22			
							23			
							24			

	Project No.: 6609		Boring	SB19	Sheet
	Client/Project: Gregg Refining		Well ID	N/A	
	Name of Geo/Eng.: Laura Rectenwald		Location Map:		
	Name of Driller: Jackie Raines no. 54661		See original.		

Location: Premier Rd. Longview, TX		Date/Time (start): 4/14/14 12:05
		Date/Time (finish): 4/14/14 14:15
Drilling Co.: Geoprobe 7720 DT	Depth (bore): 20 (Well): N/A	
Drilling Equip.: Precision Probe & Drilling	Depth to Water: (1st) (Static)	
Sampling Equip: Macrocore	Screen Interval: NA Top of Casing: NA	
Inspector:	X:	Y: Elev:

Well Const				OVA (ppm)	Blow Cnt	% Rec	Snpl Run	Depth	Grab Sample	Composite Sample	Description
	0-4	cl	sa								brown cl sa v soft wet
				1.5-1.7				1			
				18.1				2			
				2.5-2.7							
				121.0				3			
								4			
	4-5	cl	sa	4.5-4.7							cl sa orange tan vde
				60.2				5			
	5-8	lost									lost core
								6			
								7			
								8			
	8-9.5	sa	si								red tan vde
								9			tan soft
	9.5-10	sa	si	9.5-9.7							
				5.8				10			
	10-12	sa	si	10.5-10.7							grayish tan with gr soft wet
				344.7				11			
								12			
	12-15	cl	si	12.5-12.7							dark gray v de moist
				3.3				13			
								14			
				14.5-14.7							
				2.5				15			
	15-18	sa	si	15.5-15.7							very wet clay layers
				112.2				16			
								17			
				17.5-17.7							
	18-20	si	sa	250.6				18			dark gray moist vde
								19			
				19.5-19.7							
				1.0				20			
								21			
								22			
								23			
								24			



Date/Time (start): 4/14/14 8:30

Date/Time (finish): 4/14/14 11:15

Drilling Co.: Geoprobe 7720

Depth (bore): 20 (Well): N/A

Drilling Equip.: Precision Probe & Drilling

Depth to Water: (1st)	(Static)
-----------------------	----------

Sampling Equip: Macrocore

Screen Interval: NA	Top of Casing: NA
---------------------	-------------------

Inspector:

X:	Y:	Elev:
----	----	-------

[illegible]



Project No.: 6609	Boring	SB21	Sheet
Client/Project: Gregg Refining	Well ID	N/A	
Name of Geo/Eng.: Laura Rectenwald	Location Map:		
Name of Driller: Jackie Raines no. 54661	See original.		
Location: Premier Rd. Longview, TX		Date/Time (start): 4/14/14 7:40	
		Date/Time (finish): 4/14/14 8:30	
Drilling Co.: Geoprobe 7720 DT		Depth (bore): 5 (Well): N/A	
Drilling Equip.: Precision Probe & Drilling		Depth to Water: (1st) (Static)	
Sampling Equip: Macrocore		Screen Interval: NA Top of Casing: NA	
Inspector:		X:	Y: Elev:

Well Const			OVA (ppm)	Blow Cnt	% Rec	Snmpl Run	Depth	Grab Sample	Composite Sample	Description
		0-2.0	si sa							gr si sa
			cl sa	1.5-1.7			1			or & tan very dense
		2.5		255	%		2			
				2.5-2.7						A-Grab: 2-2.5
				1167.0			3			A-Comp: 1.5-5
							4			
				4.5-4.7			5			
				355.0						
					%		6			
							7			
							8			
							9			
					%		10			
							11			
							12			
							13			
					%		14			
							15			
							16			
							17			
					%		18			
							19			
							20			
							21			
							22			
							23			
							24			

MONITORING WELL CONSTRUCTION FORMS

MW9 THROUGH MW18

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW9(6609,SB9)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin FilterSil

GRADIATION: 20/40

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 13 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug Halliburton Wy, Sodium Bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 3 sacks

BOREHOLE IDENTIFICATION: SB9

TYPE OF CEMENT: Sackcrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: See Below

WELL IDENTIFICATION: MW9

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/10/14

WELL CONSTRUCTION COMPLETE DATE: 4/10/2014

DIMENSIONS OF SECURITY CASING: 4" by 4"

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

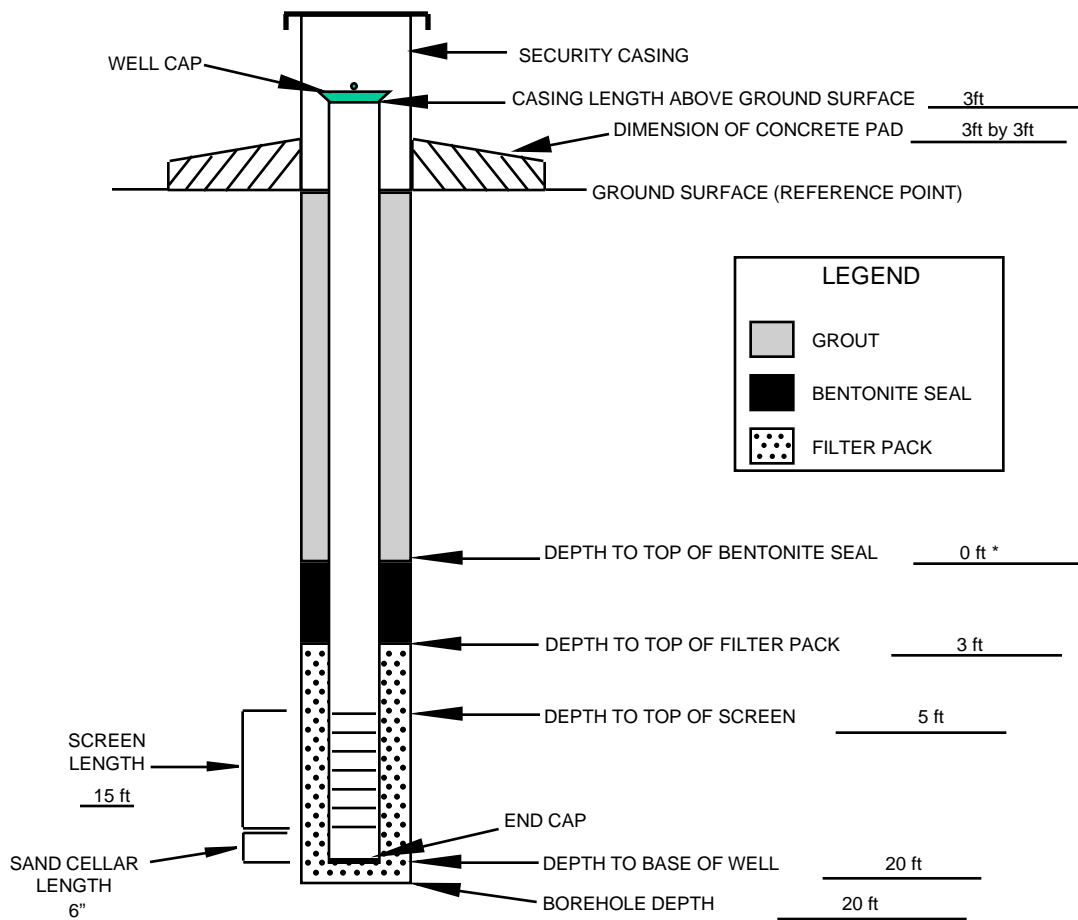
STRATUM-SCREENED INTERVAL (FT): 5-20

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: No cement amount recorded

*No cement grout-bentonite seal to surface used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW10 (6609, SB10)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 13 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug Wy. Sodium Bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 2 sacks

BOREHOLE IDENTIFICATION: SB10

TYPE OF CEMENT: Sakrete for pad only

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 8 bags for pad

WELL IDENTIFICATION: MW10

GROUT MATERIALS USED: bentonite

WELL CONSTRUCTION START DATE: 4/10/14

WELL CONSTRUCTION COMPLETE DATE: 4/12/14

DIMENSIONS OF SECURITY CASING: Flushmount

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

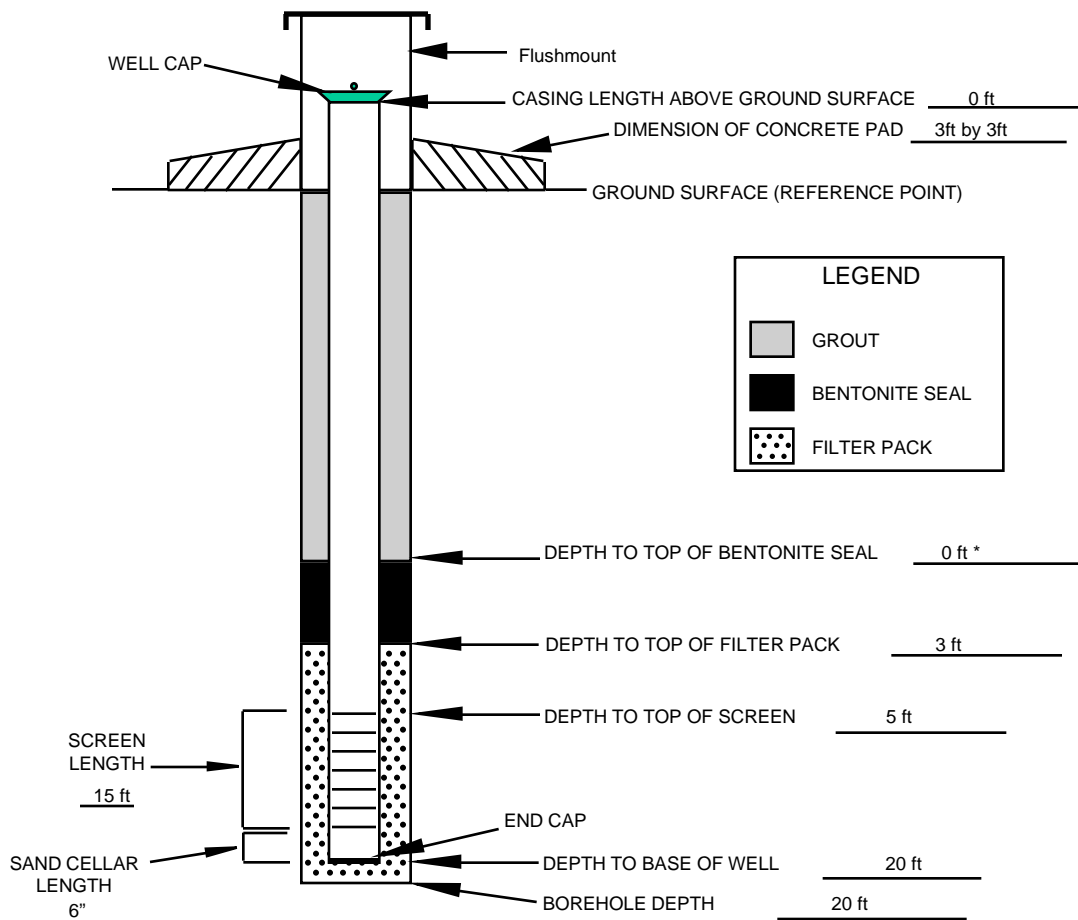
STRATUM-SCREENED INTERVAL (FT): 5-20

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

* No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW11 (6609, SB11)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 13 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 2 sacks

BOREHOLE IDENTIFICATION: SB11

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 8 bags for pad and bumper pos

WELL IDENTIFICATION: MW11

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/10/14

WELL CONSTRUCTION COMPLETE DATE: 4/12/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

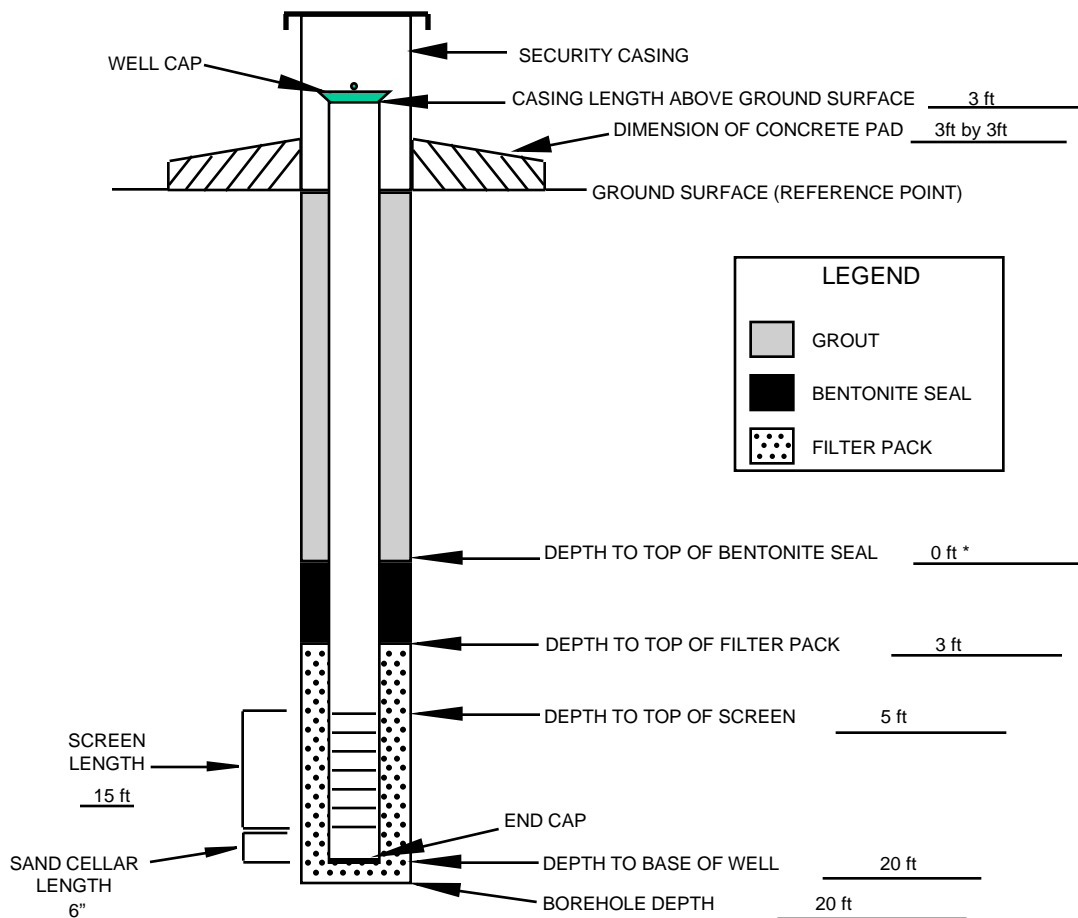
STRATUM-SCREENED INTERVAL (FT): 5-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

*No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW12 (6609, SB12)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 9 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug WY Sodium Bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 4 bags

BOREHOLE IDENTIFICATION: SB12

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 12 sacks for pad and bumper post

WELL IDENTIFICATION: MW12

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/9/14

WELL CONSTRUCTION COMPLETE DATE: 4/12/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

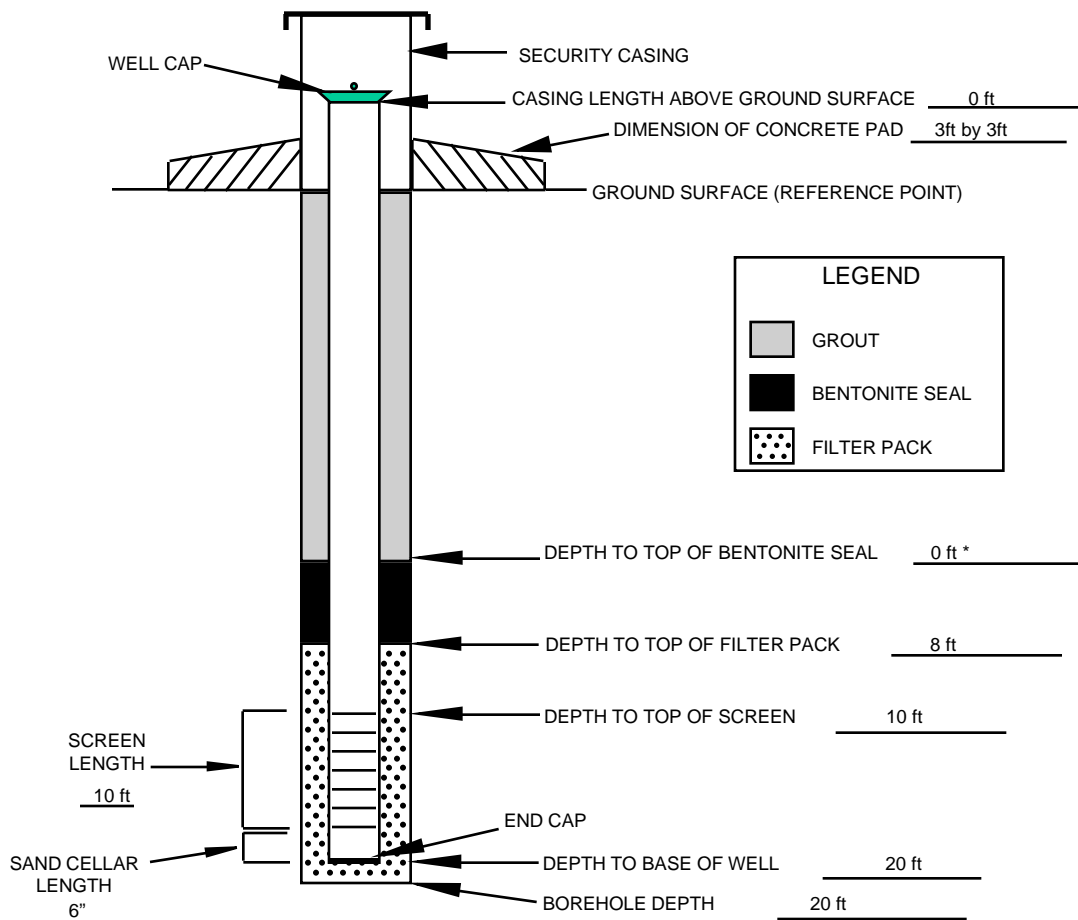
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

*No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW13 (6609, SB13)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 9 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug Wy Sodium Bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 4 sacks

BOREHOLE IDENTIFICATION: SB13

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 12 sacks for pad and bumper post

WELL IDENTIFICATION: MW13

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/10/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

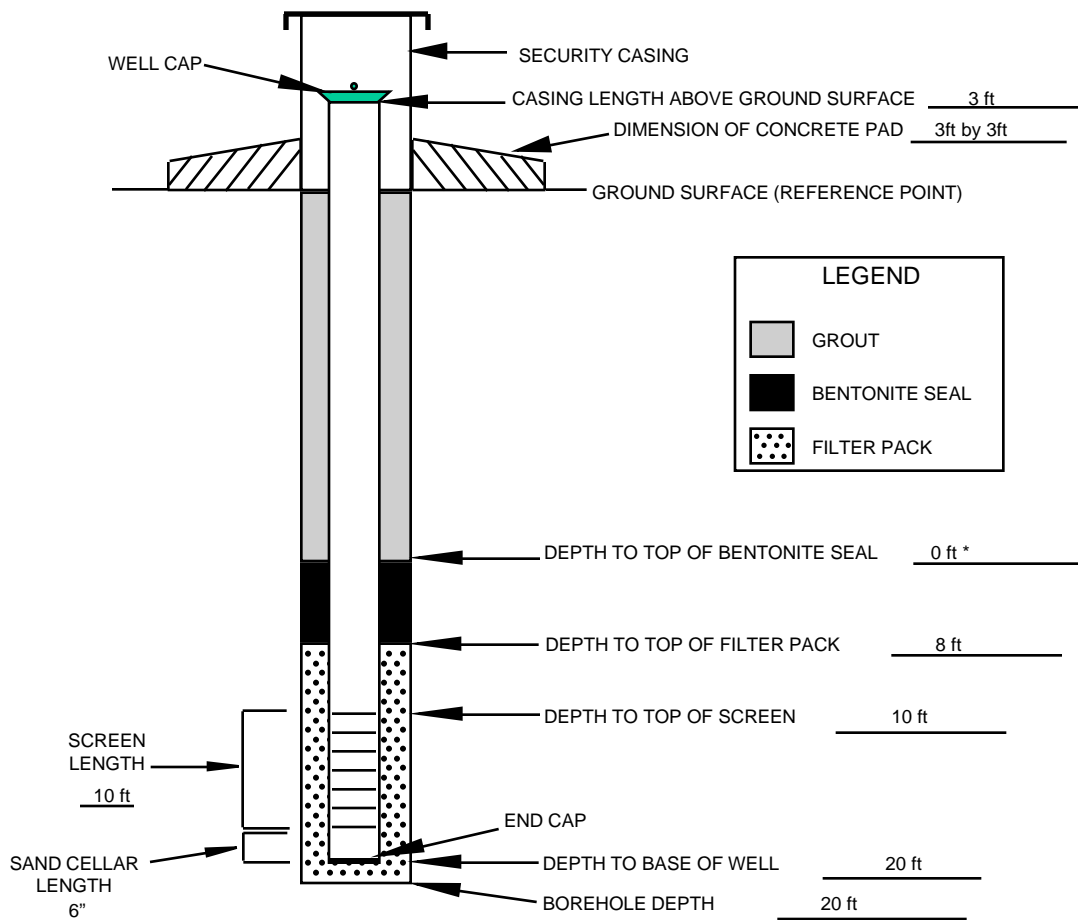
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

*No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW14 (6609, SB14)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 9 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 4 sacks

BOREHOLE IDENTIFICATION: SB14

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 12 sacks for pad and bumper post

WELL IDENTIFICATION: MW14

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/9/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

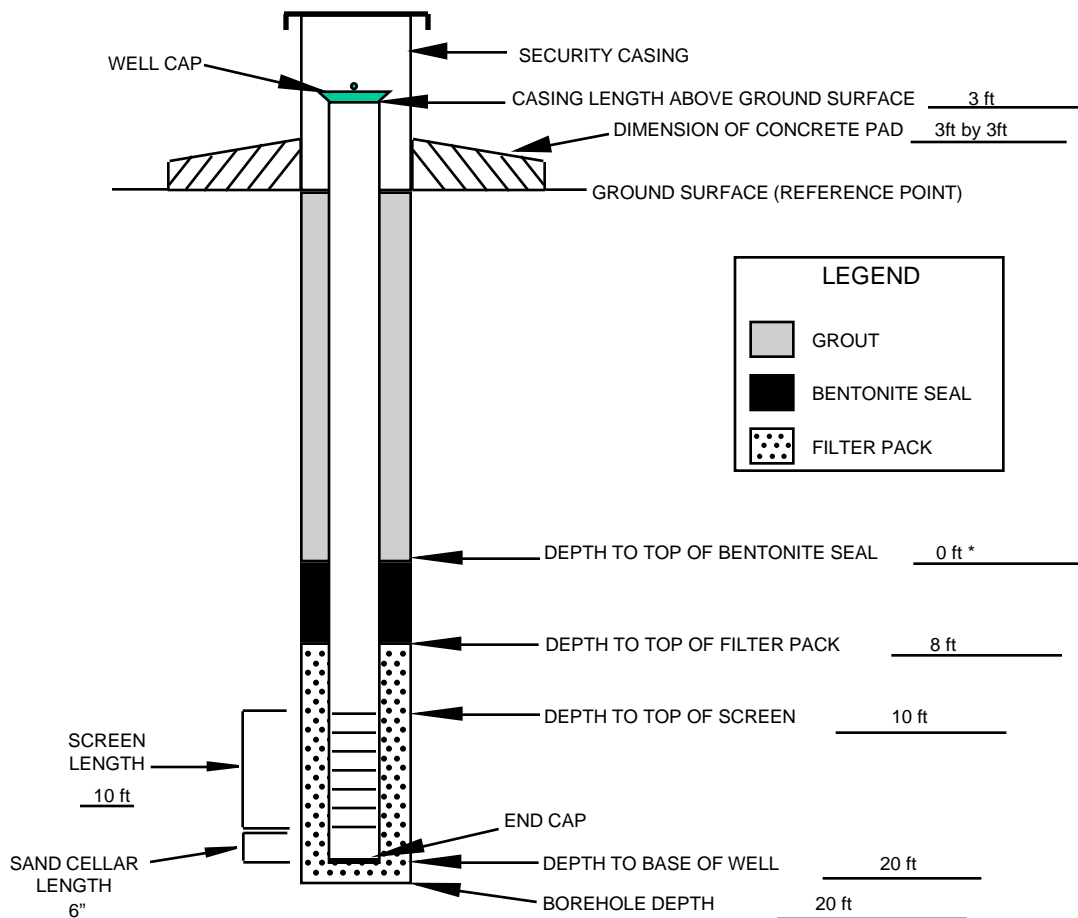
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

* No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW15 (6609, SB15)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 13 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 2 bags

BOREHOLE IDENTIFICATION: SB15

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: See Below

WELL IDENTIFICATION: MW15

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/8/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: Flushmount

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

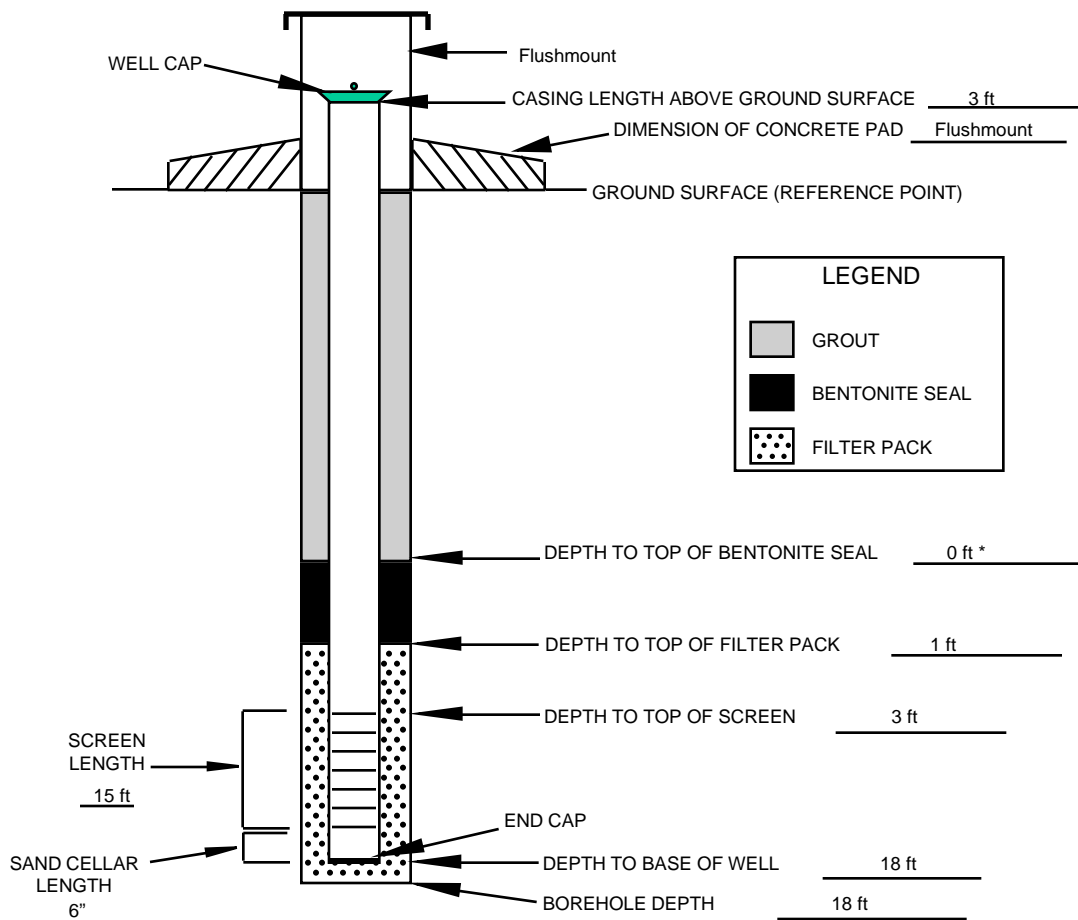
STRATUM-SCREENED INTERVAL (FT): 3-18 ft

COMMENTS: Screen was placed as high as possible due to apparent potential for LNAPL and very shallow, wet and contaminated looking/smelling soil

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: No cement amount recorded

* No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW16 (6609, SB16)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: _____

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug wy sodium bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 4 sacks

BOREHOLE IDENTIFICATION: SB16

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 12 sacks for pad and bumper post

WELL IDENTIFICATION: MW16

GROUT MATERIALS USED: bentonite

WELL CONSTRUCTION START DATE: 4/8/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

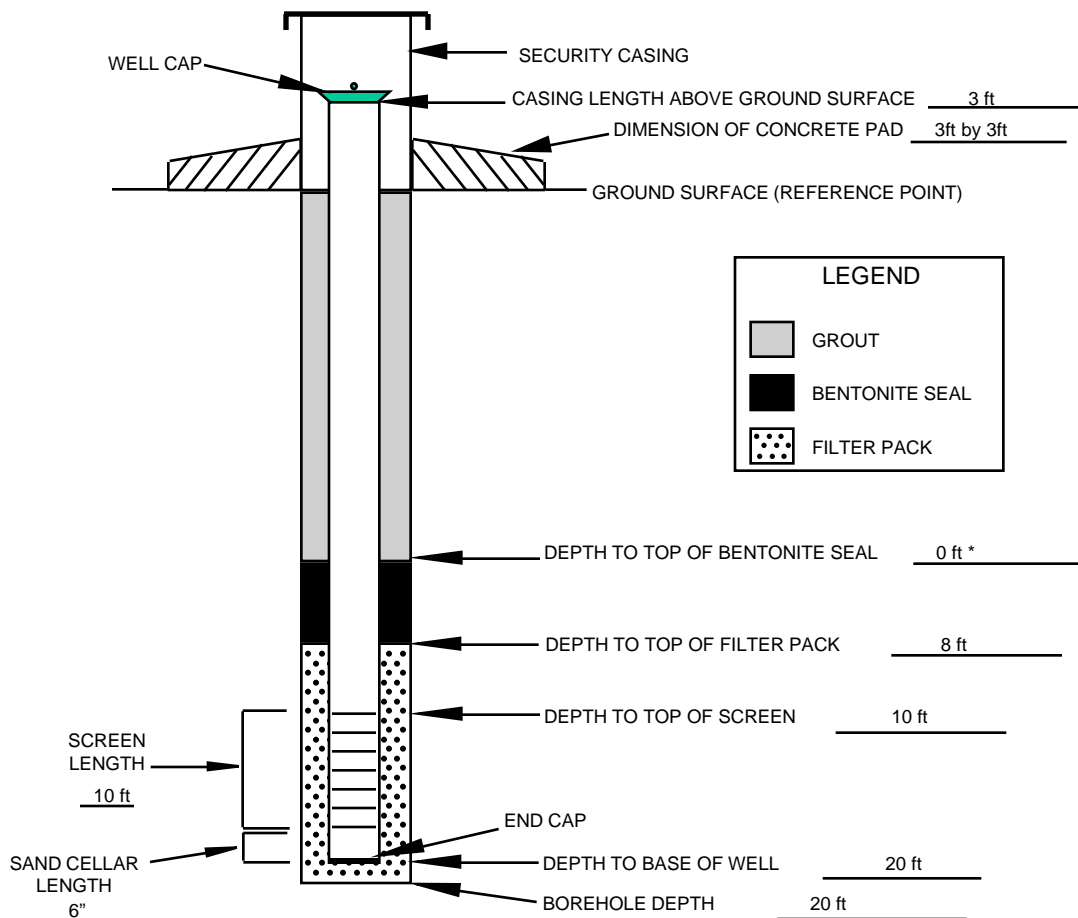
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS: _____

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

* No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW17 (6609, SB17)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sand

GRADATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 9 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug wy sodium bentonite

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: 4 sacks

BOREHOLE IDENTIFICATION: SB17

TYPE OF CEMENT: Sakrete for pad only

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: 12 sacks for pad and bumper post

WELL IDENTIFICATION: MW17

GROUT MATERIALS USED: bentonite

WELL CONSTRUCTION START DATE: 4/8/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

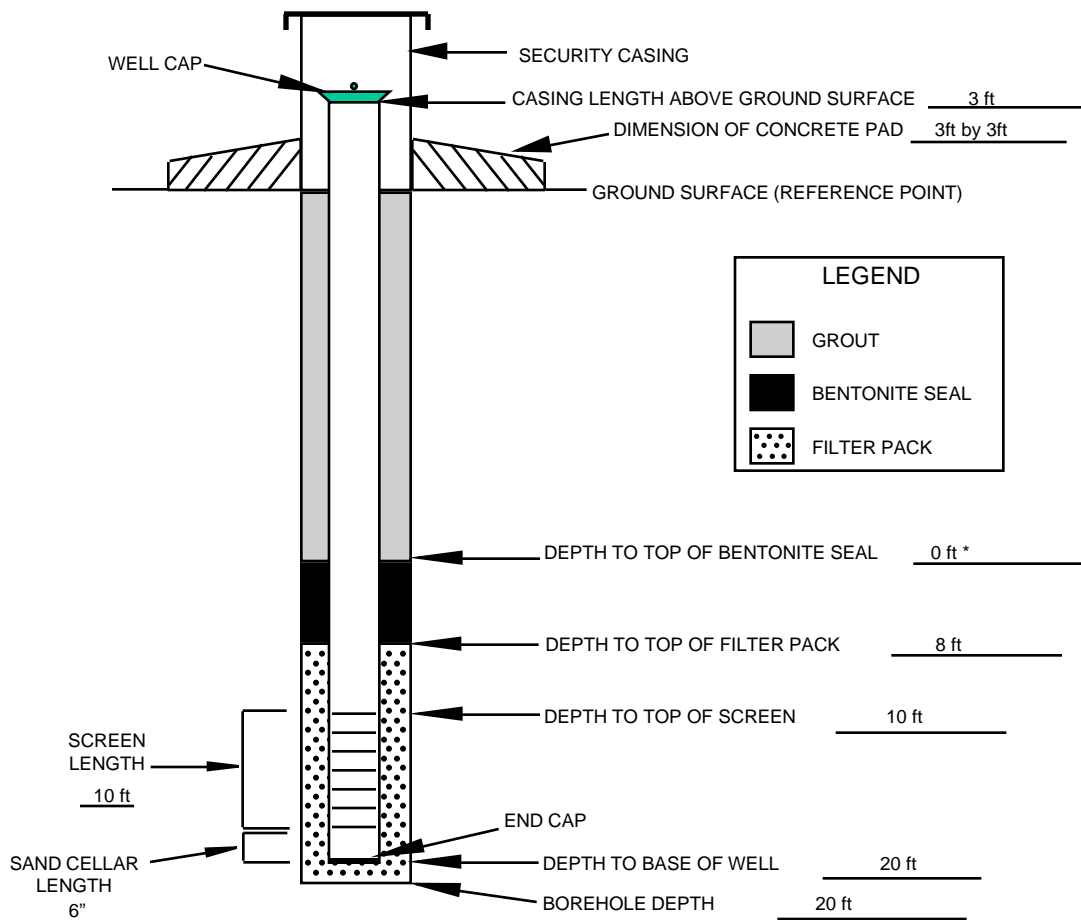
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: _____

* No cement grout-bentonite seal to surface was used.

WELL CONSTRUCTION DETAILS AND ABANDONMENT FORM

SITE ID: MW18 (6609, SB18)

WELL LOCATION: 601 Premier Rd. Longview, TX

FIELD REPRESENTATIVE: Kieler

TYPE OF FILTER PACK: Unimin Filter Sil

GRADIATION: 20/40 silica sand

DRILLING CONTRACTOR: Precision Probe & Drilling

AMOUNT OF FILTER PACK USED: 9 sacks

DRILLING TECHNIQUE: Continuous

TYPE OF BENTONITE: 3/8" Hole Plug

AUGER SIZE AND TYPE: HSA 4.25

AMOUNT BENTONITE USED: -

BOREHOLE IDENTIFICATION: SB18

TYPE OF CEMENT: Sakrete for pad

BOREHOLE DIAMETER: 8.25"

AMOUNT CEMENT USED: -

WELL IDENTIFICATION: MW18

GROUT MATERIALS USED: bentonite to surface

WELL CONSTRUCTION START DATE: 4/9/14

WELL CONSTRUCTION COMPLETE DATE: 4/11/14

DIMENSIONS OF SECURITY CASING: 4" by 4", 5 ft tall

SCREEN MATERIAL: Sched 40 PVC 0.010 slot

TYPE OF WELL CAP: orange torquer

SCREEN DIAMETER: 2"

TYPE OF END CAP: PVC pointed end cap

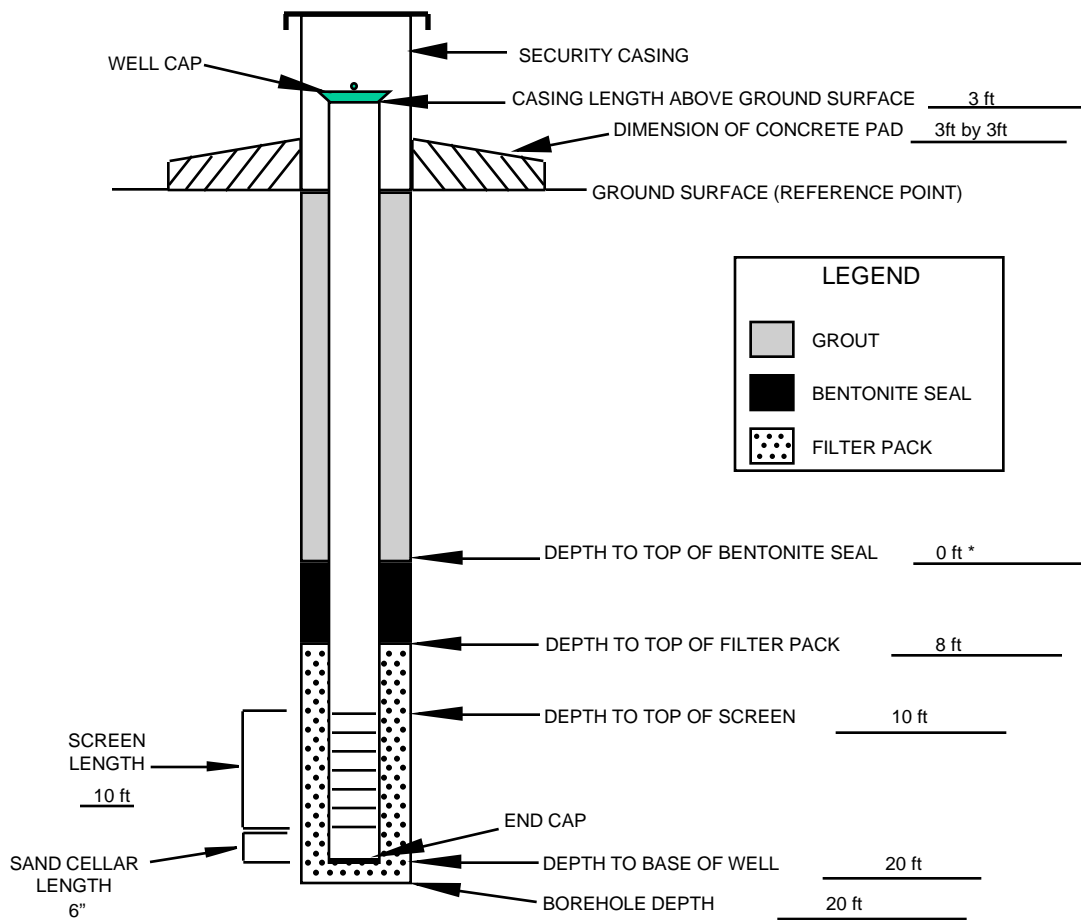
STRATUM-SCREENED INTERVAL (FT): 10-20 ft

COMMENTS:

CASING MATERIAL: Sched 40 PVC

CASING DIAMETER: 2"

SPECIAL CONDITIONS
(describe and draw)



NOT TO SCALE

INSTALLED BY: Jackie Raines, Precision Drilling

INSTALLATION OBSERVED BY: Laura Rectenwald

DISCREPANCIES: No amount of cement / bentonite recorded

* No cement grout-bentonite seal to surface was used.

STATE OF TEXAS WELL REPORTS

MW9 THROUGH MW18

STATE OF TEXAS WELL REPORT for Tracking #364220

Owner:	EPA Region 6	Owner Well #:	MW-9
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 11" N
Well County:	Gregg	Longitude:	094° 48' 38" W
Elevation:	361 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/10/2014
Completed: 4/10/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 20 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 1 ft to 3 ft with 2 bentonite (#sacks and material)
2nd Interval: From 3 ft to 20 ft with 13 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: No Data
Cemented By: No Data
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115

Driller License Number: 54661

Licensed Well Driller Signature: Jackie Raines
Registered Driller Apprentice Signature: No Data
Apprentice Registration Number: No Data
Comments: No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #364220) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft)	Description
0-.5	Top soil
.5- 1.5	Clay red to orange
1.5-2.5	Sandy Silt brown
2.5-5	Gray sandy silt
5-7	Gray silty sand
7-11	Gray sandy clay
11-14	Yellow and gray silty sand
14-17	dark gray silty clay
17-20	Dark gray sandy silt

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC 0-5 casing	
2	New	PVC 5-20 .010 screen	

STATE OF TEXAS WELL REPORT for Tracking #364222

Owner:	EPA Region 6	Owner Well #:	MW-10
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 09" N
Well County:	Gregg	Longitude:	094° 48' 37" W
Elevation:	364 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: **4/10/2014**
Completed: **4/12/2014**

Diameter of Hole: Diameter: **8.25 in From Surface To 20 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 sand**

Annular Seal Data: 1st Interval: **From 0 ft to 3 ft with 2 bentonite (#sacks and material)**
2nd Interval: **From 3 ft to 20 ft with 13 20/40 sand (#sacks and material)**
3rd Interval: **No Data**
Method Used: **No Data**
Cemented By: **No Data**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115**

Driller License Number: **54661**

Licensed Well Driller Signature: Jackie Raines
Registered Driller Apprentice Signature: No Data
Apprentice Registration Number: No Data
Comments: No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking #364222) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0-7.5		orange and red road base clay sand
7.5-10		tan sandy silt
10-14		red yellow and with sandy clay
14-15		yellow and gray gravelly clay
15-17.5		tan silty sand
17.5-18		dark brown silty clay
18-20		yellowish tan silty sand

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-5 casing
2	New	PVC	5-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364224

Owner:	EPA Region 6	Owner Well #:	MW-11
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 00" N
Well County:	Gregg	Longitude:	094° 48' 36" W
Elevation:	367 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: **4/10/2014**
Completed: **4/12/2014**

Diameter of Hole: Diameter: **8.25 in From Surface To 20 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 sand**

Annular Seal Data: 1st Interval: **From 0 ft to 3 ft with 2 bentonite (#sacks and material)**
2nd Interval: **From 3 ft to 20 ft with 12 20/40 sand (#sacks and material)**
3rd Interval: **No Data**
Method Used: **No Data**
Cemented By: **No Data**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115**

Driller License Number: **54661**

Licensed Well Driller Signature: **Jackie Raines**
Registered Driller Apprentice Signature: **No Data**
Apprentice Registration Number: **No Data**
Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft)	Description
0-.5	tan top soil
.5-2.5	orange red tan clay sand
2.5-5	red tan sand silt
5-7	red tan silty sand
7-10	redish to yellow silty sand
10-14.5	yellow silty sand
14.5-16.5	yellow and red clay sand
16.5-20	yellow red silty sand

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-5 casing
2	New	PVC	5-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364230

Owner:	EPA Region 6	Owner Well #:	MW-12
Address:	1445 Ross Ave. Suite 1200 Dallas , TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview , TX 75604	Latitude:	32° 30' 00" N
Well County:	Gregg	Longitude:	094° 48' 28" W
Elevation:	358 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: **4/9/2014**
Completed: **4/12/2014**

Diameter of Hole: Diameter: **8.25 in From Surface To 20 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 sand**

Annular Seal Data: 1st Interval: **From 0 ft to 8 ft with 4 bentonite (#sacks and material)**
2nd Interval: **From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)**
3rd Interval: **No Data**
Method Used: **No Data**
Cemented By: **No Data**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Precision Probe and Drilling**
9416 Prestonwood Drive
Shreveport , LA 71115

Driller License Number: **54661**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

Please include the report's Tracking number (Tracking #364230) on your written request.

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting	From/To
2	New	PVC 0-10 casing		
2	New	PVC 10-20 .010 screen		

STATE OF TEXAS WELL REPORT for Tracking #364231

Owner:	EPA Region 6	Owner Well #:	MW-13
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-34-2
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 29' 59" N
Well County:	Gregg	Longitude:	094° 48' 22" W
Elevation:	348 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: **4/9/2014**
Completed: **4/12/2014**

Diameter of Hole: Diameter: **8.25 in From Surface To 20 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 sand**

Annular Seal Data: 1st Interval: **From 0 ft to 8 ft with 4 bentonite (#sacks and material)**
2nd Interval: **From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)**
3rd Interval: **No Data**
Method Used: **No Data**
Cemented By: **No Data**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **No Data**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115**

Driller License Number: **54661**

Licensed Well Driller Signature: Jackie Raines
Registered Driller Apprentice Signature: No Data
Apprentice Registration Number: No Data
Comments: No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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DESC. & COLOR OF FORMATION MATERIAL**CASING, BLANK PIPE & WELL SCREEN DATA**

From (ft)	To (ft)	Description
0-2		brown top soil
2-3.5		Tan clayey silt
3.5-7		orange and yellow sandy clay
7-9.5		red orange clay sandy silt
9.5-12.5		red orange sandy clay
12.5-17.5		dark gray clayey sandy silt
17.5-20		dark gray sandy silt

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-10 casing
2	New	PVC	10-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364234

Owner:	EPA Region 6	Owner Well #:	MW-14
Address:	1445 Ross Ave. Suite 1200 Dallas , TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview , TX 75604	Latitude:	32° 30' 02" N
Well County:	Gregg	Longitude:	094° 48' 22" W
Elevation:	352 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/9/2014
Completed: 4/11/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 20 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 0 ft to 8 ft with 4 bentonite (#sacks and material)
2nd Interval: From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: No Data
Cemented By: No Data
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport , LA 71115

Driller License Number: 54661

Licensed Well Driller Signature: Jackie Raines
 Registered Driller Apprentice Signature: No Data
 Apprentice Registration Number: No Data
 Comments: No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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 Austin, TX 78711
 (512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	-.5	brown top soil
.5	2	red gray clayey sand
2	7	red gray sandy clay
7	10.5	orange gray yellow clay silt
10.5	12	tan silty sand
12	12.5	yellow gray sandy clay
12.5	13	yellow gray gravel clay sand
13	14	yellow silty sand
14	17.5	dark gray silty clay
17.5	20	dark gray sandy silt

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-10 casing
2	New	PVC	10-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364236

Owner:	EPA Region 6	Owner Well #:	MW-15
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 09" N
Well County:	Gregg	Longitude:	094° 48' 24" W
Elevation:	352 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/8/2014
Completed: 4/11/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 18 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 0 ft to 1 ft with 1 bentonite (#sacks and material)
2nd Interval: From 1 ft to 18 ft with 13 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: No Data
Cemented By: No Data
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115

Driller License Number: 54661

Licensed Well Driller Signature: **Jackie Raines**
 Registered Driller Apprentice Signature: **No Data**
 Apprentice Registration Number: **No Data**
 Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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DESC. & COLOR OF FORMATION MATERIAL			CASING, BLANK PIPE & WELL SCREEN DATA		
From (ft)	To (ft)	Description	Dia.	New/Used	Type Setting From/To
0-1		orange clayey sand	2	New	PVC 0-3 casing
1-2		brown sandy clay	2	New	PVC 3-18 .010 screen
2-5		brown clayey sand			
5-7		gray black yellow and red clay			
7-7.5		gray clay sand			
7.5-9		gray yellow sandy clay			
9-9.5		yellow clayey sand			
9.5-12		dark gray clay			
12-13.5		brown clayey sand			
13.5-14		red clayey sand			
14-15		brown sand			
15-16.5		brown silty sand			
16.5-20		dark gray sandy clay			

STATE OF TEXAS WELL REPORT for Tracking #364239

Owner:	EPA Region 6	Owner Well #:	MW-16
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 07" N
Well County:	Gregg	Longitude:	094° 48' 26" W
Elevation:	360 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/8/2014
Completed: 4/11/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 20 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 0 ft to 8 ft with 4 bentonite (#sacks and material)
2nd Interval: From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: Gravity
Cemented By: Jackie Raines
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115

Driller License Number: 54661

Licensed Well Driller Signature: Jackie Raines
Registered Driller Apprentice Signature: No Data
Apprentice Registration Number: No Data
Comments: No Data

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft)	Description
0-2.5	brown and black silty sand
2.5-5	orange yellow sandy clay
5-7	gray and pink sandy clay
7-7.5	yellow brown gravel
7.5-10	gray yellow sand clay
10-15	brown sandy clay
15-17	tan sand
17-20	dark gray silty clay

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-10 casing
2	New	PVC	10-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364242

Owner:	EPA Region 6	Owner Well #:	MW-17
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 05" N
Well County:	Gregg	Longitude:	094° 48' 30" W
Elevation:	364 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/8/2014
Completed: 4/11/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 20 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 0 ft to 8 ft with 4 bentonite (#sacks and material)
2nd Interval: From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: Gravity
Cemented By: Jackie Raines
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115

Driller License Number: 54661

Licensed Well Driller Signature: Jackie Raines
 Registered Driller Apprentice Signature: No Data
 Apprentice Registration Number: No Data
 Comments: No Data

IMPORTANT NOTICE: FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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 P.O. Box 12157
 Austin, TX 78711
 (512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0-2		tan gravely silty sand
2-5		orange tan clayey sand
5-6.5		orange and tan clayey sand
6.5-7.5		gray orange sandy clay
7.5-15		gray yellow clay silt
15-16.5		dark gray silty clay
16.5-17.5		dark gray silty sand
17.5-20		dark gray sandy clayey silt

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-10 casing
2	New	PVC	10-20 .010 screen

Licensed Well Driller Signature: **Jackie Raines**
 Registered Driller Apprentice Signature: **No Data**
 Apprentice Registration Number: **No Data**
 Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

CASING, BLANK PIPE & WELL SCREEN DATA

From (ft)	To (ft)	Description
0-1.5		brown sandy silt
1.5-7		tan silty sand
7-8		brown sandy clay
8-8.5		iron stone gravel
8.5-10.5		red gray yellow sandy clay
10.5-12.5		brown silty sand
12.5-13.5		gray and yellow sandy silt
13.5-14		brown caly
14-17		dark gray silty caly
17-18.5		dark gray sandy silt
18.5-19.5		dark gray sandy silt
19.5-20		dark gray silty caly

Dia.	New/Used	Type	Setting From/To
2	New	PVC	0-10 casing
2	New	PVC	10-20 .010 screen

STATE OF TEXAS WELL REPORT for Tracking #364243

Owner:	EPA Region 6	Owner Well #:	MW-18
Address:	1445 Ross Ave. Suite 1200 Dallas, TX 75202	Grid #:	35-26-8
Well Location:	601 Premier Road Longview, TX 75604	Latitude:	32° 30' 02" N
Well County:	Gregg	Longitude:	094° 48' 32" W
Elevation:	364 ft.	GPS Brand Used:	Google Earth
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 4/9/2014
Completed: 4/11/2014

Diameter of Hole: Diameter: 8.25 in From Surface To 20 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: 20/40 sand

Annular Seal Data: 1st Interval: From 0 ft to 8 ft with 4 bentonite (#sacks and material)
2nd Interval: From 8 ft to 20 ft with 9 20/40 sand (#sacks and material)
3rd Interval: No Data
Method Used: Gravity
Cemented By: Jackie Raines
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

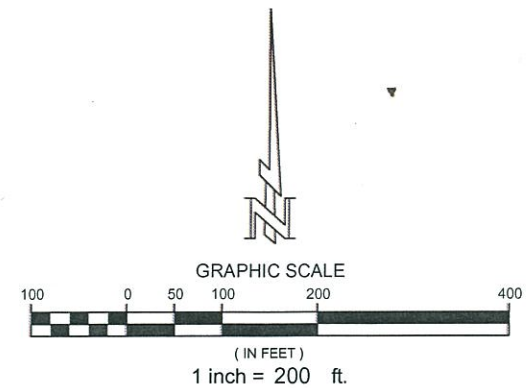
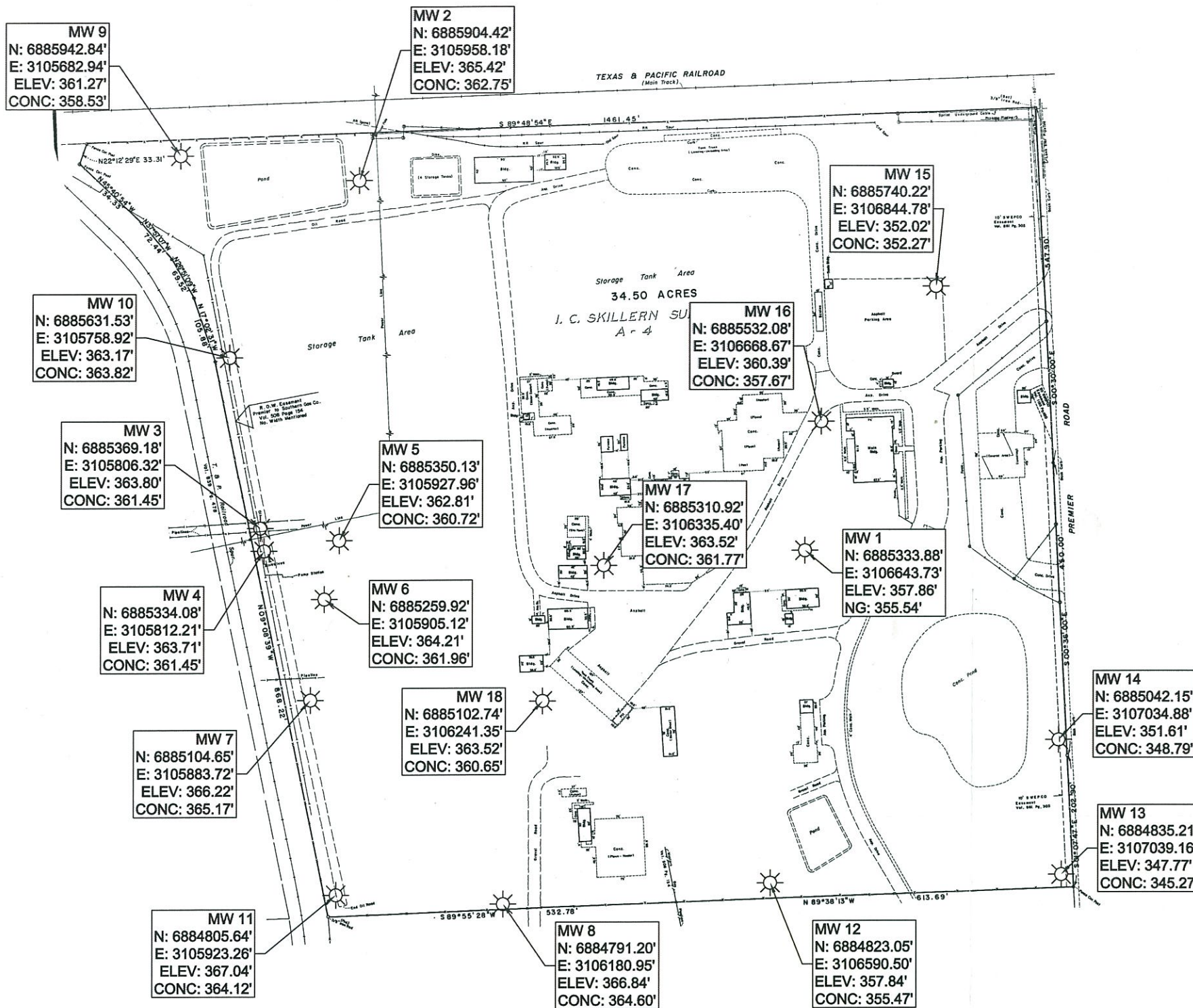
Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Precision Probe and Drilling
9416 Prestonwood Drive
Shreveport, LA 71115

Driller License Number: 54661

MONITORING WELL SURVEY MAP

MW1 THROUGH MW18



NOTES

1. COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE, AND REFERENCED TO THE CITY OF LONGVIEW, 2002 MAPPING AND MONUMENTATION PROJECT HORIZONTAL AND VERTICAL CONTROL NETWORK, ESTABLISHED BY CITY OF LONGVIEW ORDINANCE NO.3124, PASSED AND APPROVED ON MAY 23, 2002.
2. DISTANCES SHOWN ARE GRID DISTANCES. TO CONVERT TO SURFACE DISTANCES DIVIDE GRID DISTANCES BY THE SCALE FACTOR: 0.9999330.
3. BOUNDARY AND IMPROVEMENTS SHOWN HEREON FOR INFORMATIONAL PURPOSES ONLY AND BASED UPON A HART ENGINEERING JOB #11,481, DATED AUGUST 17, 1988.

SURVEYORS CERTIFICATION

I HEREBY CERTIFY THIS PLAT REFLECTS THE FACTS AS FOUND AT THE TIME OF SAID SURVEY.

Troy Maxwell
TROY MAXWELL
 PROFESSIONAL LAND SURVEYOR
 TEXAS REGISTRATION NO. 5585

APRIL 17, 2014
 DATE



MONITORING WELL EXHIBIT
 LONGVIEW REFINERY
 GREGG COUNTY, TEXAS

JOHNSON & PACE INCORPORATED
 1201 NW LOOP 281, SUITE 100, LONGVIEW, TEXAS 75604
 (903)753-0663 FAX (903)753-8803
 WWW.JOHNSONPACE.COM
 TBPLS #10025400

MONITORING WELL DEVELOPMENT FORMS

MW1 THROUGH MW18

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 804		Well Number: MW-1	
Well Type: Monitoring					
Well Material: PVC 2"		Well Integrity: Unl Rusted, no lock			
Well casing monitoring readings:		0ppm headspace; 0ppm breathing zone; 0ppm ground			
Weather: 63 degrees, cloudy, 81% humidity					
5-10 mph SSW		Developed By: Kieler/Raines			

WELL PURGING							
PURGE DATE:	4/12/14	WATER DEPTH/TD: (ft. BTOC):	5.5	16.97	Date:	4/12/14	Time: 804
			1.86 gallons				
			Estimate 2 gallons gpm				

FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4-12-14		Well Purge Volume: 2									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
851	2	16.10	9.65	0.540	29.60	3.09	-77.5				brownish red/grey silt/fuel odor
854	2.2	16.30	9.02	0.589	128.00	3.92	-46.4				cloudy/light grey brown
857	2.3	16.78	8.52	0.625	99.00	3.91	-33.6				clear, fuel smell
859	2.2	16.67	8.59	0.635	17.60	3.79	-37.0				clear, fuel smell
902	2.2	16.60	8.53	0.638	9.54	3.70	-37.7				clear, fuel smell
904	2	16.61	8.53	0.630	6.81	3.60	-34.9				fuel odor
12.9		Total Purge Volume		**Individual volumes, not cumulative, in gallons							
		925 WC=6.71									

WELL SAMPLING	
<p>NOTES:</p> <p>935 Decon pump and water levels; throw away tubing/hose.</p> <p>Decon with pump Alconox wash, potable rinse/pump and DI water rinse and drain at Decon</p> <p>930 depart site</p>	

QUALITY CONTROL SAMPLES		Additional comments: _____ _____ _____ _____ Recorded by: Kieler	
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB	_____	
Duplicate	FD	_____	
Equipment Blank	EB	_____	
Trip Blank	TB	_____	

NOTES: 6 volumes, parameters and turbidity ok

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1118		Well Number: MW-2							
Well Type: Monitoring											
Well Material: PVC 2" dia pvc stickup MW Well Integrity: Unlocked but closed, cap in place											
Well casing monitoring readings: 0ppm multiRae 3000, 1ppm during purge											
Weather: Sunny; 68 degrees											
22% humidity, WNW 14											
Developed By: Walden/Rectenwald											
WELL PURGING											
PURGE DATE: 4/7/14		WATER DEPTH/TD: (ft. BTOC): 3.08 18.88		Date: 4/7/14 Time: 1555							
Well volume 9.49L/2.57 gal											
Air monitoring results: 0ppm MultiRae 3000											
Whale submersible pump - already decontaminated @ pad @ 1430											
Purge Time											
Start 1601 odor noted bottom was soft											
Stop 1634											
Total elapsed 33 minutes											
Water depth/TD after purge 17.01 4.9											
FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4/7/2014		Well Purge Volume: 2.57									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1600	19.0L	-	-	-	-	*	-	-	-	-	dark grey, oil and sewage odor
1612	9.0 L	16.94	6.43	0.780	15.7	2.27	-71.2	-	-	-	slight sheen
1620	9.0 L	16.55	6.52	0.723	15.8	14.50	-104.9	-	-	-	slight sheen
1624	4.5 L	16.74	6.52	0.403	29.4	10.12	-92.9	-	-	-	slight sheen
1630	9.0 L	17.43	6.52	0.378	30.0	109.90	-100.4	-	-	-	slight sheen, started to go dirty
1634	9.0 L	17.38	6.47	0.352	28.9	117.70	-83.6	-	-	-	slight sheen
								-	-	-	
								-	-	-	
59.5 L Total Purge Volume		6.21 volumes				**Individual volumes, not cumulative, in gallons		* not valid due to purge rate			
WELL SAMPLING											
NOTES:											
<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>											
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments					
QUALITY CONTROL SAMPLES											
TYPE	SAMPLE ID	C-of-C	Additional comments: _____ _____ _____ _____ Recorded by: Rectenwald								
Ambient Blank	AB	_____									
Duplicate	FD	_____									
Equipment Blank	EB	_____									
Trip Blank	TB	_____									

Groundwater Development Data Sheet

Gregg County Refinery						Well Number: MW-3					
Well Type: Monitor						MW3 20086M report					
Well Material: PVC 2"						Well Integrity: No lock, zip tie casing rusted					
Well casing monitoring readings: 0 ppm breathing zone; 1.2ppm well head; 0ppm ground						whale pump model WP 6012					
Weather: Sunny, 60 degrees, 44% humidity											
WSW 14 mph						Developed By: Kieler/Walden					

WELL PURGING											
PURGE DATE: 4/11/14		WATER DEPTH/TD: (ft. BTOC): 5.15 15.62				Date: 4/11/14		Time: 837			
15.62-5.15=10.47x.163=1.7 gal											

Purge Time

Start 851 * with stoppage

Stop 925

Total elapsed 34 minutes *pump stopped at each vol.

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT												
Time of last calibration	4/11/14	Well Purge Volume					1.7					
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	*D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	
857	1.9	16.83	8.10	0.793	-	111.4	-30.3	-	-	-	heavily silted/med color/slight fuel odc	
900	1.7	16.27	6.25	1.506	55.70	34.2*	-31.6	-	-	-	Grey slightly silty/no odor	
903	1.7	16.66	7.08	0.867	100.60	109.0	-27.7	-	-	-	Clearer/no odor	
907	0.7	DRY	-	-	-	-	-	-	-	-		
913	0.5	17.04	7.40	0.986	35.40	108.8	-6.2	-	-	-	More clear/no odor	
919	0.5	DRY	-	-	-	-	-	-	-	-		
925	0.5	16.67	8.38	1.522	28.60	44.3	-29.4	-	-	-	More clear/slight odor	
											* wrong DO measured	
	7.5	Total Purge Volume					**Individual volumes, not cumulative, in gallons					
9.32 DTW = 12.32 BTOC						Depart well 940						

WELL SAMPLING						
Decon water level indicator, throw away hose/tubing						
Will decon both pump after next well MW-4						
<div style="border: 2px solid black; padding: 10px; width: 50%; margin: 10px auto;"> <p>Sample Date: _____</p> <p style="text-align: right;">Start: _____</p> <p>Sample Time: _____ Finish: _____</p> <p style="text-align: center; font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes</p> </div>						

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES			Additional comments: _____ _____ _____ _____ Recorded by: Kieler
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB	_____	
Duplicate	FD	_____	
Equipment Blank	EB	_____	
Trip Blank	TB	_____	

NOTES: 7.5 gallons total purged; well pumped dry twice; turbidity below 50NTUS

Groundwater Development Data Sheet

Gregg County Refinery						Well Number: MW-4							
Well Type: M													
Well Material: PVC 2"		Well Integrity: New install, new pad		whale pump model WP 6012									
Well casing monitoring readings: 0 ppm breathe zone; 0ppm well; 0ppm ground													
Weather: Sunny, 50 degrees; 48% humidity													
wind				Sampled By: Kieler/Walden									
WELL PURGING													
PURGE DATE: 4/11/14		WATER DEPTH/TD: (ft. BTOC) 8 15.9		Date: 4/11/14		Time: 1000							
7.9 x .163 = 1.28 gal													
2.5 purge rate estimated													
Purge Time													
Start 1008													
Stop 1023													
Total elapsed 15 minutes		*pump stopped at each vol.											
<table border="1" style="float: right; width: 200px;"> <tr><td>Conversion Factors</td></tr> <tr><td>2" sched. 40 = .163 gal./ft.</td></tr> <tr><td>2" sched 40 = .617 Liters/ft.</td></tr> <tr><td>3/8" OD Tubing = .028 ml./ft.</td></tr> <tr><td>1/4" OD Tubing = .015 ml./ft.</td></tr> <tr><td>1 Gallon = 3.7854 Liters</td></tr> </table>								Conversion Factors	2" sched. 40 = .163 gal./ft.	2" sched 40 = .617 Liters/ft.	3/8" OD Tubing = .028 ml./ft.	1/4" OD Tubing = .015 ml./ft.	1 Gallon = 3.7854 Liters
Conversion Factors													
2" sched. 40 = .163 gal./ft.													
2" sched 40 = .617 Liters/ft.													
3/8" OD Tubing = .028 ml./ft.													
1/4" OD Tubing = .015 ml./ft.													
1 Gallon = 3.7854 Liters													
FIELD PARAMETER MEASUREMENT													
Time of last calibrati 4/11/14		Well Purge Volum 1.2											
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)		
1010	1.3	17.33	7.97	3.220	58.6	40.2	71.9	-	-	-	Sulphur odor/black		
1016	1.4	16.34	7.76	3.049	21.4	63.1	63.6	-	-	-	Less odor/light grey		
1019	1.4	16.66	7.70	1.652	21.1	107.9	59.3	-	-	-	light grey		
1022	1.4	10.95	7.76	3.102	12.8	91.2	35.0	-	-	-	light grey		
1023	0.1	-	-	DRY	-	-	-	-	-	-	N/A		
1025	DRY	-	-	DRY	-	-	-	-	-	-	N/A		
5.6		Total Purge Volume						**Individual volumes, not cumulative, in gallons					
1036 WD=9.7 BTOC													
WELL SAMPLING													
Decon water level indicator and two pumps													
Alconox wash through pump - potable water rinse through pump - DI water rinse and drain													
<div style="border: 2px solid black; padding: 10px; float: right; width: 250px;"> Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>													
Control No.	Volume/Cont.	Analysis Requested			Preserv.	Sample Location ID		QC?	Comments				
QUALITY CONTROL SAMPLES													
TYPE	SAMPLE ID		C-of-C		Additional comments: _____ _____ _____ _____ Recorded by: Kieler								
Ambient Blank	AB		_____										
Duplicate	FD		_____										
Equipment Blank	EB		_____										
Trip Blank	TB		_____										

NOTES: 5.6 total gallons purged; well pump dry; turbidity below 50NTUS

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 208		Well Number: MW-5	
Well Type: MW					
Well Material: PVC 2" Well Integrity: Surface water covering well pad; water in between riser and protective casing					
Well casing monitoring readings: 211: breathing zone: 0.0ppm; wellhead 20.2ppm; ground 0.0ppm					
Weather: Sunny; 70 degrees					
Developed By: Kieler/Walden					

WELL PURGING									
PURGE DATE: 4/11/14		WATER DEPTH/TD: (ft. BTOC) 2.35 14.5 w/ sediment		Date: 4/11/14		Time: 220			
		14.5-2.35= 12.15x.163= 1.98							
		hard bottom				1.98 gal			
Purge Time				Purge rate: 2.2 gal					
Start 226									
Stop 305									
Total elapsed 29		minutes							

FIELD PARAMETER MEASUREMENT												
Time of last calibrati		4/11/14		Well Purge Volum		1.9						
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. %	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	
2.28	3.2	18.82	8.45	1.492	53.8	137.2	-32.5	-	-	-	Light grey/heavy fuel odor	
2.33	2.2	17.56	10.26	1.591	170.0	55.2	-43.1	-	-	-	heavy fuel odor	
2.40 (dry)	1.5	17.49	9.92	1.485	34.4	14.8	-39.5	-	-	-	fuel odor/more clear	
2.53	2.2	17.28	9.69	1.511	22.0	31.9	-40.8	-	-	-	fuel odor/more clear	
2.55 (dry)	2.0	-	-	-	-	-	-	-	-	-	fuel odor/more clear	
3.03 (dry)	2.0	18.10	8.88	1.658	22.8	118.9	-33.2	-	-	-	fuel odor/more clear	
		11.3		Total Purge Volume		**Individual volumes, not cumulative, in gallons						

WELL SAMPLING									
Decon pumped - Alconox and potable rinse through pump, DI rinse and pump drain									

Control No.		Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES			Additional comments:	
TYPE	SAMPLE ID	C-of-C		
Ambient Blank	AB			
Duplicate	FD			
Equipment Blank	EB			
Trip Blank	TB			

Recorded by: Walden	
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NOTES: Well surged with pump; total volume purged 90.3

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1220		Well Number: MW-6	
Well Type: Monitoring		Well Integrity: No lock, ziptie, rusted casing		Purge Method: Whaley pump #WP6012 super purge	
Well Material: PVC 2"		Well casing monitoring readings: Breathing Zone 0.0ppm; wellhead 0.2ppm; ground 0.0ppm			
Weather: Sunny; 68 degrees		Developed By: Kieler/Walden			
22% humidity, WNW 14					

WELL PURGING									
PURGE DATE: 4/11/14		WATER DEPTH/TD: (ft. BTOC) 5.22 15.34		Date: 4/11/14		Time: 1229			
		10.12							
		1.65 gal							
		1.7 gal per minute purge rate							
Purge Time									
Start 1235									
Stop 1317		*stop between well volume							
Total elapsed 22		minutes							

FIELD PARAMETER MEASUREMENT												
Time of last calibrati		4/11/2014		Well Purge Volum		1.65						
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	
1237	1.7	18.16	9.17	1.222	38.3	51.4	-30.6				Slightly clear, grey, fuel odor	
1239	1.5	DRY	-	-	-	-	-	-	-	-	more turbid, grey, fuel odor	
1242	0.2	18.01	9.29	1.492	180.0	56.0	-19.7	-	-	-	trubid light grey	
1242	0.1	DRY	-	-	-	-	-	-	-	-		
1253	1.6	DRY	-	-	-	-	-	-	-	-		
1255	0.2	DRY	-	-	-	-	-	-	-	-	fuel odor	
1255 (purged again)		17.51	9.01	0.910	38.2	31.0	-13.9	-	-	-		
1307	1.5	19.75	9.88	0.818	36.0	67.1	-29.9	-	-	-	light odor/fuel odor	
								-	-	-		
								-	-	-		
		5.3		Total Purge Volume		**Individual volumes, not cumulative, in gallons						
Total		6.8		PURGED AGAIN DRY		1317 WD=8.75 BTOC						

WELL SAMPLING									
<p>NOTES:</p> <p>Decon pumps - throw away tubing; Decon water level indicator; alconox wash run through pump, potable rinse run through pump, DI rinse and pump drain</p>									

Control No.		Volume/Cont.		Analysis Requested		Preserv.		Sample Location ID		QC?		Comments	

QUALITY CONTROL SAMPLES			Additional comments:
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB		
Duplicate	FD		
Equipment Blank	EB		
Trip Blank	TB		

Recorded by: Kieler	
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NOTES: 6.8 total gallons purged.; well dried 4 times; last turbidity reading below 50 NTUS

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1118		Well Number: MW-7	
Well Type: Monitoring		Well Integrity: Ziptied, not locked, rusted casing		C#7 on well casing (MW-6 2008 GW report)	
Well Material: PVC 2"		Well casing monitoring readings: 0.0ppm breathe zone; 0.0ppm wellhead; 0.0ppm ground		Method: Whaley pump #NP6012	
Weather: Sunny; 68 degrees, WSW 16 mph		50% humidity		Developed By: Kieler	

WELL PURGING											
PURGE DATE: 4/11/14		WATER DEPTH/TD: (ft. BTOC): 7 22.91		Date: 4/11/14		Time: 1125					

Purge Time		2.593 gal	
Start	1128		
Stop	1149	*stop at each well volume	
Total elapsed	21	minutes	

FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4/11/14		Well Purge Volume: 2.5									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1132	2.8	18.39	8.53	0.322	*	46.00	7.3	-	-	-	Black, no odor
1134	2.6	17.68	8.53	0.327	19.80	5.56	8.5	-	-	-	more clear, light grey
1136	2.6	17.54	5.60	0.529	10.10	102.20	26.7	-	-	-	clear, no odor
1139	2.6	17.57	7.92	0.332	7.95	66.10	33.3	-	-	-	clear, no odor
1143	2.6	18.15	8.58	0.328	17.50	47.60	-6.0	-	-	-	clear, no odor
1149	2.6	18.05	8.61	0.332	18.100	46.70	-	-	-	-	Missed ORP reading
								-	-	-	
								-	-	-	
		15.8		Total Purge Volume		**Individual volumes, not cumulative, in gallons					
* out of range		WL=8.22 BTOC		Depart well 1214							

WELL SAMPLING											
NOTES: Decon water level indicator and will decon pump following MW-7 development with second pump.											
<div style="border: 2px solid black; padding: 5px; width: fit-content;"> Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>											

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES				Additional comments:
TYPE	SAMPLE ID	C-of-C		
Ambient Blank	AB	_____	_____	Recorded by: Kieler _____ _____ _____
Duplicate	FD	_____	_____	
Equipment Blank	EB	_____	_____	
Trip Blank	TB	_____	_____	

NOTES: 15.8 total gallons purged, 6 volumes, turbidity below 50 NTUS

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 4:30		Well Number: MW-8	
Well Type: MW					
Well Material: PVC 2"		Well Integrity: Rustred casing, unlocked, no water in casing, pad not cracked			
Well casing monitoring readings: 4.29 breathing zone 0.0ppm; wellhead 0.0ppm ground 0.0ppm					
Weather: 81 degrees, humidity 50%; wind 2 mph					
Sunny, no clouds		Sampled By: Kieler/Walden			

WELL PURGING					
PURGE DATE: 4/11/14	WATER DEPTH/TD: (ft. BTOC): 7.4 18.95	Date: 4/11/14	Time: 433		
	18.95-7.4= 11.55				
	hard bottom				
	1.88 gal				
Purge Time	Purge rate: 2.2 gal				
Start 439					
Stop 457					
Total elapsed 18 minutes					

FIELD PARAMETER MEASUREMENT											
Time of last calibration	4/11/14	Well Purge Volume				1.8					
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
441	1.8	17.62	7.32	0.580	208.0	2.36	99.2	-	-	-	No odor/slightly clear
442	5.0	16.72	7.23	0.674	198	4.12	101.9	-	-	-	No odor/slightly clear
445	7.0	16.67	7.03	0.604	229.0	3.38	106.7	-	-	-	No odor/slightly clear
447	9.0	16.73	6.69	0.605	190.0	2.65	112.	-	-	-	No odor/slightly clear
449	12.5	17.56	7.34	0.611	34.6	6.01	95.50	-	-	-	No odor/slightly clear
451	16.0	17.43	7.24	0.612	110.0	3.03	95.6	-	-	-	No odor/slightly clear
453	19.0	16.98	7.09	0.613	86.8	4.24	99.0	-	-	-	No odor/slightly clear
455	22.0	16.68	6.73	0.624	27.3	4.21	104.0	-	-	-	No odor/slightly clear
								-	-	-	
22		Total Purge Volume		**Individual volumes, not cumulative, in gallons							

WELL SAMPLING					
Time 5:02					
WL= 9.32 ft					

Sample Date: N/A
 Start: _____
 Sample Time: _____ Finish: _____
Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES			Additional comments: _____ _____ _____ _____ _____ _____ Recorded by: Walden
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB	_____	
Duplicate	FD	_____	
Equipment Blank	EB	_____	
Trip Blank	TB	_____	

NOTES: Well surged with pump; total volume purged 22

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 440		Well Number: MW-9							
Well Type: MW											
Well Material: PVC 2"		Well Integrity: New install, new well pad									
Well casing monitoring readings: _____											
Weather: Sunny; hot; windy											
Developed By: Walden											
WELL PURGING											
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC): 3.6 23.24		Date: 4/12/14 Time: 444							
		soft bottom									
		3.2 gal									
		Purge rate: 2.2 gpm									
Purge Time											
Start 504											
Stop 537											
Total elapsed 33 minutes											
FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4/14/14		Well Purge Volume: 2.2 gpm									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
504	3	-	-	-	*OUT	-	-	-	-	-	Heavily silted/septic odor
510	3	-	-	-	*OUT	-	-	-	-	-	
514	3	-	-	-	*OUT	-	-	-	-	-	
519	2	20.08	5.93	0.288	*OUT	15.59	50.8	-	-	-	at 11.5 gallons change in color
526	4	20.85	5.86	0.268	*OUT	6.02	53.5	-	-	-	
532	3	19.48	5.54	0.194	-	1.48	88.1	-	-	-	after 18 gals went to heavy surging to attempt to clear well
537	2	-	-	-	-	-	-	-	-	-	well dry
20		Total Purge Volume		**Individual volumes, not cumulative, in gallons							
* out of range											
WELL SAMPLING											
NOTES:											
After heaving surging after 18 gal, the flow rate increased, darker color											
At 4.5 gallons flow decreased											
No turbidity taken, inches of silt in purge bucket 20 gal total purge											
DTW at 5:38 is 21.9 end of development, well dry											
Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small>											
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments					
QUALITY CONTROL SAMPLES											
TYPE	SAMPLE ID	C-of-C	Additional comments: _____ _____ _____ Recorded by: Walden								
Ambient Blank	AB	_____									
Duplicate	FD	_____									
Equipment Blank	EB	_____									
Trip Blank	TB	_____									

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 904		Well Number: MW-10	
Well Type: Monitoring					
Well Material: PVC 2"		Well Integrity: Flush mount (new well), no lock, mount/pad installed yet (new well)			
Well casing monitoring readings:		0.2ppm breathing; 4.9ppm well; .2ppm ground			
Weather:					
68 degrees, cloudy		Developed By: Kieler/Raines			

WELL PURGING					
PURGE DATE:	4/12/14	WATER DEPTH/TD: (ft. BTOC):	4.15	20.32	Date: 4/12/14
		soft bottom	16.17		Time: 953

Purge Time 2.63 gallons purge volume

Start 957 *well stopped producing so purge was stopped for recharge

Stop 1037

Total elapsed 40 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT											
Time of last calibration	4/12/14	Well Purge Volume					2.63				
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
959	5	17.33	10.30	1.055	-	4.700	-109.6	-	-	-	heavy sediment (silt/fine), fuel odor, heavy surge
1009	15	16.51	9.59	1.152	-	3.9	-98.6	-	-	-	increased vigor of surge
1013	4	17.74	8.46	1.226	282.0	2.10	-81.6	-	-	-	purge rate slowed
1017	3	17.68	8.12	1.196	187.0	8.59	-34.6	-	-	-	frothy surface to water
*1027	8	17.96	8.03	1.299	50.4	7.99	-28.9	-	-	-	pump sucking air, sweet odor
1037	5	18.13	8.24	1.291	45.9	3.50	-43.0	-	-	-	

40 Total Purge Volume

*stop pump to recharge

**Individual volumes, not cumulative, in gallons

11 well cleanup, well surface complete adding lock and lid

WELL SAMPLING	
Decon equipment: WL and pump, dispose of tubing 	<p>Sample Date: N/A</p> <p>Start: _____</p> <p>Sample Time: _____ Finish: _____</p> <p style="font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes.</p>

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES			Additional comments:
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB	_____	_____ _____ _____ _____ Recorded by: Kieler
Duplicate	FD	_____	
Equipment Blank	EB	_____	
Trip Blank	TB	_____	

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 230		Well Number: MW-11	
Well Type: MW					
Well Material: PVC 2"		Well Integrity: New install, new well pad			
Well casing monitoring readings:		PID: breathing zone 0.0ppm; headspace 0.0ppm; ground 0.0ppm			
Weather: Overcast, 80 degrees					
Humidity 52%, wind 15 mph		Developed By: Walden/Matheme			

WELL PURGING											
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC) 7.9 23.19				Date: 4/12/14		Time: 249			
soft bottom											
2.49 gal											
purge rate: 3.6 gal/min											
Purge Time											
Start 255											
Stop 314											
Total elapsed 19 minutes											

FIELD PARAMETER MEASUREMENT											
Time of last calibrati 4/12/2014		Well Purge Volume: 2.4									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
258	3.0	-	-	-	*out	-	-				clay/silt, no odor
300	2.5	-	-	-	*out	-	-				clay/silt, no odor
301	2.5	-	-	-	*out	-	-				clay/silt, no odor
303	2.5	-	-	-	*out	-	-				clay/silt, no odor
304	2.5	-	-	-	*out	-	-				clay/silt, no odor
310	2.5	19.98	4.81	0.660	88.6	12.28	186.8				slightly clearer, no odor
312	2.5	18.90	4.75	1.145	170.0	11.53	199.6				slightly silty, no odor
314	2.5	18.70	4.65	1.198	199.0	11.52	203.6				slightly silty, no odor
											*out of range
	20.5	Total Purge Volume **Individual volumes, not cumulative, in gallons									

WELL SAMPLING											
DTW: 8.3 after development											
20.5 gallons total purged											
<div style="border: 2px solid black; padding: 5px; display: inline-block;"> Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>											

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments

QUALITY CONTROL SAMPLES			Additional comments: _____ _____ _____ Recorded by: Walden
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB	_____	
Duplicate	FD	_____	
Equipment Blank	EB	_____	
Trip Blank	TB	_____	

Notes: Decon pump and water level indicator alconox, potable, DI

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 100		Well Number: MW-12													
Well Type: Monitoring																	
Well Material: PVC 2" Well Integrity: New install, well pad poured recently																	
Well casing monitoring readings: PID: breathing zone 0.0ppm; headspace 0.1ppm; ground 0.0ppm																	
Weather: Sunny, partly cloudy																	
77 degrees, humidity 59%, wind 5mph																	
Developed By: Walden/Matheme																	
WELL PURGING																	
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC): 4.81 23.08		Date: 4/12/14 Time: 109													
Purge Time		2.97 gal purge rate: 2 gal/min		<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td colspan="2" style="text-align: center;">Conversion Factors</td></tr><tr><td>2" sched. 40 = .163 gal./ft.</td><td></td></tr><tr><td>2" sched 40 = .617 Liters/ft.</td><td></td></tr><tr><td>3/8" OD Tubing = .028 ml./ft.</td><td></td></tr><tr><td>1/4" OD Tubing = .015 ml./ft.</td><td></td></tr><tr><td>1 Gallon = 3.7854 Liters</td><td></td></tr></table>		Conversion Factors		2" sched. 40 = .163 gal./ft.		2" sched 40 = .617 Liters/ft.		3/8" OD Tubing = .028 ml./ft.		1/4" OD Tubing = .015 ml./ft.		1 Gallon = 3.7854 Liters	
Conversion Factors																	
2" sched. 40 = .163 gal./ft.																	
2" sched 40 = .617 Liters/ft.																	
3/8" OD Tubing = .028 ml./ft.																	
1/4" OD Tubing = .015 ml./ft.																	
1 Gallon = 3.7854 Liters																	
Start 117																	
Stop 205																	
Total elapsed 48 minutes																	
FIELD PARAMETER MEASUREMENT																	
Time of last calibration:		Well Purge Volume: 2.97															
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)						
121	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
122	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
124	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
130	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
132	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
134	3	-	-	-	*out	-	-	-	-	-	silty/no odor						
145	3	18.65	5.55	0.409	*out	15.75	91.5	-	-	-	silty/no odor						
147	3	20.01	5.57	0.232	*out	10.25	63.2	-	-	-	silty/no odor						
149	3	20.34	5.38	0.245	*out	10.98	82.3	-	-	-	silty/no odor						
152	3	20.13	5.53	0.251	564	11.43	86.5	-	-	-	slightly clearer						
155	3	18.83	5.84	0.255	195	9.59	97.0	-	-	-							
205	3	18.70	5.35	0.424	458	10.53	133.1	-	-	-							
								-	-	-							
								-	-	-	*out of range						
20.5		Total Purge Volume		**Individual volumes, not cumulative, in gallons													
WELL SAMPLING																	
DTW: 9.42 after development																	
36 gallons total purged																	
<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td>Sample Date: _____</td></tr><tr><td>Start: _____</td></tr><tr><td>Sample Time: _____</td></tr><tr><td>Finish: _____</td></tr><tr><td style="font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes.</td></tr></table>						Sample Date: _____	Start: _____	Sample Time: _____	Finish: _____	Indicate Start/Finish times only if sample times are greater than 15 minutes.							
Sample Date: _____																	
Start: _____																	
Sample Time: _____																	
Finish: _____																	
Indicate Start/Finish times only if sample times are greater than 15 minutes.																	
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments											
QUALITY CONTROL SAMPLES																	
TYPE	SAMPLE ID	C-of-C	Additional comments: _____ _____ _____ Recorded by: Walden														
Ambient Blank	AB	_____															
Duplicate	FD	_____															
Equipment Blank	EB	_____															
Trip Blank	TB	_____															

Notes: Decon pump and water level indicator alconox, potable, DI

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 904		Well Number: MW-13							
Well Type: MW		Well Integrity: New install, concrete pad									
Well Material: PVC		Well casing monitoring readings: PIDD: 0.0ppm at breathing zone									
Weather: cloudy, overcast		Developed By: Walden/Matherne									
65 degrees, humidity 85%, wind 5 mph											
WELL PURGING											
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC) 3.69 23.1		Date: 4/12/14 Time: 917							
		soft bottom									
		23.1-3.69=19.41									
		3.16 gallons									
Purge Time		Flow rate: 1.99 gal/min		Conversion Factors 2" sched. 40 = .163 gal./ft. 2" sched 40 = .617 Liters/ft. 3/8" OD Tubing = .028 ml./ft. 1/4" OD Tubing = .015 ml./ft. 1 Gallon = 3.7854 Liters							
Start 927											
Stop 1034											
Total elapsed 67 minutes											
FIELD PARAMETER MEASUREMENT											
Time of last calibrati 4/12/14		Well Purge Volum 3.1									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
931	3.1	19.1	6.29	0.248	*out	9.16	-27.5	-	-	-	dark silty, no odor
938	3.2	18.45	6.03	0.454	*out	9.45	-35.5	-	-	-	cloudy/no odor
942	3.0	18.44	5.84	0.459	*out	2.03	-22.3	-	-	-	very cloudy, no odor
948	6.5	18.62	5.99	0.234	736.0	9.15	-25.1	-	-	-	clearer, still cloudy, no odor
954	6.5	18.81	6.1	0.233	418.0	12.50	-25.3	-	-	-	clearer, still cloudy, no odor
1004	12.0	18.91	6.25	0.216	209.0	9.35	-42.9	-	-	-	clearer, still cloudy, no odor
1016	12.0	19.03	6.33	0.241	128.0	2.30	-29.7	-	-	-	clearer, still cloudy, no odor
1034	17.0	19.58	6.41	0.357	84.9	10.3	-32.6	-	-	-	clearer, still cloudy, no odor
											*out of range
		63.3 Total Purge Volume				**Individual volumes, not cumulative, in gallons					
WELL SAMPLING											
DTW 4.25 end of development											
Decon pump and tube alconox, tap, DI											
Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small>											
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments					
QUALITY CONTROL SAMPLES											
TYPE	SAMPLE ID	C-of-C	Additional comments: _____ _____ _____ Recorded by: Walden								
Ambient Blank	AB	_____									
Duplicate	FD	_____									
Equipment Blank	EB	_____									
Trip Blank	TB	_____									

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1120		Well Number: MW-14							
Well Type: MW											
Well Material: PVC 2"		Well Integrity: New install, concrete pad									
Well casing monitoring readings: PID breathing zone 0.0ppm; headspace 0.1ppm; ground 0.0ppm											
Weather: overcast, 74 degrees, wind 4 mph											
humidity 63%			Developed By: Walden/Matherne								
WELL PURGING											
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC): 7.45 22.49		Date: 4/12/14 Time: 1129							
		soft bottom									
		2.45 gal									
		flow rate: 2 gal/min									
Purge Time		1208 development									
Start 1137											
Stop 1213											
Total elapsed 36 minutes											
4.9											
FIELD PARAMETER MEASUREMENT											
Time of last calibration 4/12/14		Well Purge Volume 2.4									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1137	2.5	-	*out	-	*out	-	-	-	-	-	
1140	2.5	-	*out	-	*out	-	-	-	-	-	
1142	2.5	-	*out	-	*out	-	-	-	-	-	
1144	2.5	-	*out	-	*out	-	-	-	-	-	
1146	2.5	-	*out	-	*out	-	-	-	-	-	
1149	2.5	-	*out	-	*out	-	-	-	-	-	
1151	2.5	-	*out	-	*out	-	-	-	-	-	
1209	2.5	21.8	6.25	0.850	*out	5.80	-14.9	-	-	-	
1211	2.5	20.7	6.20	0.664	*out	3.07	-25.00	-	-	-	
1213	2.5	22.5	6.25	0.578	*out	8.30	-22.9	-	-	-	
											*out of range: turbidity
25.0		Total Purge Volume		**Individual volumes, not cumulative, in gallons							
SURGE		25 total gallons purged		DTW: 9.91 after development							
WELL SAMPLING											
Decon: pump and water level indicator, alconox, potable DI											
<div style="border: 1px solid black; padding: 5px; display: inline-block;"><div>Sample Date: N/A</div><div>Start: _____</div><div>Sample Time: _____ Finish: _____</div><div style="font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes.</div></div>											
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments					
QUALITY CONTROL SAMPLES											
TYPE	SAMPLE ID	C-of-C	Additional comments: _____								
Ambient Blank	AB	_____	_____								
Duplicate	FD	_____	_____								
Equipment Blank	EB	_____	_____								
Trip Blank	TB	_____	Recorded by: Walden								

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1415		Well Number: MW-15															
Well Type: Monitoring																			
Well Material: PVC 2"		Well Integrity: New																	
Well casing monitoring readings:		PID: breathing zone 0.0ppm; headspace 0.0ppm; ground 0.0ppm																	
Weather: Cloudy		Developed By: Kieler/Raines																	
WELL PURGING																			
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC): 2.5 18.16		Date: 4/12/14 Time: 1425															
Purge Time		2.55 gallons/per volume		<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td colspan="2" style="text-align: center;">Conversion Factors</td></tr><tr><td>2" sched. 40 = .163 gal./ft.</td><td></td></tr><tr><td>2" sched 40 = .617 Liters/ft.</td><td></td></tr><tr><td>3/8" OD Tubing = .028 ml./ft.</td><td></td></tr><tr><td>1/4" OD Tubing = .015 ml./ft.</td><td></td></tr><tr><td>1 Gallon = 3.7854 Liters</td><td></td></tr></table>		Conversion Factors		2" sched. 40 = .163 gal./ft.		2" sched 40 = .617 Liters/ft.		3/8" OD Tubing = .028 ml./ft.		1/4" OD Tubing = .015 ml./ft.		1 Gallon = 3.7854 Liters			
Conversion Factors																			
2" sched. 40 = .163 gal./ft.																			
2" sched 40 = .617 Liters/ft.																			
3/8" OD Tubing = .028 ml./ft.																			
1/4" OD Tubing = .015 ml./ft.																			
1 Gallon = 3.7854 Liters																			
Start 1438																			
Stop 1511																			
Total elapsed 33 minutes																			
FIELD PARAMETER MEASUREMENT																			
Time of last calibration:		Well Purge Volume:																	
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)								
1440	4.0	20.23	6.85	0.762	-	8.66	16.9	-	-		heavy surge/brown grey								
1442	2.0	19.40	6.91	0.878	245	5.45	17.3	-	-		no surge, clearing sediment								
1445	2.5	20.42	6.74	0.781	197	4.80	39.6	-	-		no surge, clearing sediment								
1447	2.5	19.93	6.91	0.853	347	3.87	15.1	-	-		slowing flow								
1448	1.0	20.25	6.90	0.828	124	3.84	13.2	-	-		dry, cloudy but clear grey								
1508	1.0	20.04	6.87	0.783	101	3.94	-	-	-		grey brown								
1511	-	-	-	-	-	-	-	-	-		no purge volume, sputtering								
11.0		Total Purge Volume				**Individual volumes, not cumulative, in gallons													
WELL SAMPLING																			
1517 14.23 WL						<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td colspan="2">Sample Date: _____</td></tr><tr><td colspan="2">Start: _____</td></tr><tr><td>Sample Time: _____</td><td>Finish: _____</td></tr><tr><td colspan="2" style="font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes.</td></tr></table>						Sample Date: _____		Start: _____		Sample Time: _____	Finish: _____	Indicate Start/Finish times only if sample times are greater than 15 minutes.	
Sample Date: _____																			
Start: _____																			
Sample Time: _____	Finish: _____																		
Indicate Start/Finish times only if sample times are greater than 15 minutes.																			
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments													
QUALITY CONTROL SAMPLES						Additional comments: _____ _____ _____ _____ Recorded by: Kieler													
TYPE	SAMPLE ID	C-of-C																	
Ambient Blank	AB	_____																	
Duplicate	FD	_____																	
Equipment Blank	EB	_____																	
Trip Blank	TB	_____																	

Groundwater Development Data Sheet

Gregg County Refinery		Arrived 1216		Well Number: MW-17							
Well Type: Monitoring											
Well Material: PVC 2"		Well Integrity: New stickup, pad complete, good condition									
Well casing monitoring readings:		0ppm breathing zone; 0ppm well head, 0ppm ground									
Weather: 68 degrees, cloudy		Developed By: Kieler/Raines									
WELL PURGING											
PURGE DATE: 4/12/14		WATER DEPTH/TD: (ft. BTOC): 8.45 23.3		Date: 4/12/14 Time: 1220							
		14.85x 163									
		2.42 gallons purge volume									
Purge Time				Conversion Factors 2" sched. 40 = .163 gal./ft. 2" sched 40 = .617 Liters/ft. 3/8" OD Tubing = .028 ml./ft. 1/4" OD Tubing = .015 ml./ft. 1 Gallon = 3.7854 Liters							
Start 1226											
Stop 1255											
Total elapsed 29 minutes											
		14.5 gallons, 6 vols									
FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4/12/14		Well Purge Volume: 2.42									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1228	2.5	19.66	7.56	0.808	-	11.12	-37.5				strong surge initial sed, then cloudy white grey
1230	2.7	19.24	7.22	1.178	-	3.06	34.7				slight odor fuel
1233	2.5	20.01	6.99	1.021	630	2.32	4.7				slow surge
1237	1.8	20.43	7.04	1.104	190	1.98	12.8				no surge, varying flow rates
1240	2.0	20.67	7.02	1.110	168	1.29	6.9				no surge, varying flow
1243	2.5	19.9	6.89	1.051	102	1.46	-13.5				no surge, varying flow
1246	2.5	20.06	6.97	1.085	108	1.72	8.1				No surge, lower flow
1255	2.5	20.45	6.96	1.091	47	2.00	8.4				low flow now, near trickle
											*out of range
19		Total Purge Volume		**Individual volumes, not cumulative, in gallons							
WELL SAMPLING											
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto;"> Sample Date: N/A Start: _____ Sample Time: _____ Finish: _____ <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>											
Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments					
QUALITY CONTROL SAMPLES			Additional comments: _____								
TYPE	SAMPLE ID	C-of-C									
Ambient Blank	AB	_____									
Duplicate	FD	_____									
Equipment Blank	EB	_____									
Trip Blank	TB	_____									
			Recorded by: Kieler								

Sample Date: N/A

Start: _____

Sample Time: _____ Finish: _____

Indicate Start/Finish times only if sample times are greater than 15 minutes.

MONITORING WELL SAMPLING FORMS

MW1 THROUGH MW18

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Arrival time 1235

Well Number: MW-1

Well Type:

Well Material: PVC

Well Integrity: Rusted casing, stick up

Well casing monitoring readings:

PID: 1) Breathing Zone 0.2ppm; 2) wellhead 0.1ppm; 3) ground: 0.1ppm

Weather: Sunny, 60 degrees

slight breeze

Sampled By: Konvalin

WELL PURGING

PURGE DATE: 4/16/14

WATER DEPTH/TD: (ft. BTC): 5.65 16.975

Date: 4/16/14 Time: 1242

Purge Time

Start 1253

Stop 1330

Total elapsed 37 minutes

PID:

North Notch: Marked

Riser Height: 2.5

Casing Height: 2.85

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 04/16/2014

Well Purge Volume: 1.84

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1256	0.35	16.8	6.65	0.632	20.6	2.7	-50.6	-	-	-	-
1301	0.35	16.45	6.37	0.629	11.3	0.5	-40.3	-	-	-	-
1306	0.35	16.62	6.3	0.631	14.6	0.43	-39.7	-	-	-	-
1311	0.35	16.64	6.29	0.631	12.9	0.45	-42.6	-	-	-	-
1316	0.35	16.68	6.31	0.631	11.9	0.44	-47.6	-	-	-	-
1321	0.35	16.69	6.32	0.63	11.0	0.45	-47.7	-	-	-	-
1326	0.35	16.73	6.29	0.627	8.19	0.74	-45.4	-	-	-	-
	2.45	Total Purge Volume		**Individual volumes, not cumulative, in gallons (approximate)							

WELL SAMPLING

DTW

6.2 @ 1258

pump rate decreased for VOCs and EDBs and then returned to initial rate for metals and SVOCs

6.35 @ 1318 - pump rate reduced

6.3 @ 1358 FINAL

Approx Pump Depth: 12 feet bgs

11.35x.163=1.85

Sample Date: 4/16/14

Start: 1330

Sample Time: 1330

Finish: 1358

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW1	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW1	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW1	2-40ml glass vials with Teflon septa	VOCs 8260C	4°C, HCl	-	-	-
MW1	2-500 ml glass or poly	TAL 6020A HG 7040A/7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments: No well cap/plug water inside well casing

Water inside well casing.

Recorded by: Lauren Konvalin

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Arrived 1544

Well Number: MW-3

Well Type:

Well Material: PVC 2"

Well Integrity: New install, new pad

Well casing monitoring readings: 52.4 ppm wellhead; 12 inch breathing zone; 4 inch riser inside; 36 inch tom of monument

Weather: overcast, 60 degrees

Sampled By: Thompson / Arthur

WELL PURGING

PURGE DATE: 4/15/14 WATER DEPTH/TD: (ft. BTOC): 5.2 15.5 Date: 4/15/14 Time: 1535

1.68 gallons

Purge Time

Start 1547 delay due to pump rate
 Stop 1620
 Total elapsed 33 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/15/2014

Well Purge Volume: 1.67

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor) DTW
1553	-	16.62	7.79	0.595	22	3.3	-	-	-	-	-
1558	-	16.26	7.01	0.597	65.7	0.55	-	-	-	-	6.5
1604	-	16.24	6.69	0.596	62.8	0.55	-	-	-	-	7.4
1609	-	16.14	6.54	0.596	51.4	0.47	-	-	-	-	8.0
1615	-	16.04	6.55	0.602	39.6	0.43	-	-	-	-	8.0
1620	-	16.06	6.54	0.604	31.1	0.39	-	-	-	-	8.0

- Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

Approx Pump Depth: 11 feet bgs

Sample Date: 4/15/14

Start: 1620

Sample Time: 1620 Finish: 1700

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW3	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW3	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW3	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW3	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

Additional comments: ORP not collected

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Recorded by: Jamie Thompson

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Arrival time 1235

Well Number: **MW-4**

Well Type:

&MW4-DUP

Well Material: PVC

Well Integrity: Rusted casing, stick up

Well casing monitoring readings: 1) breathing zone: 0.1 ppm, 2) wellhead 2.2 ppm, 3) ground 0.1 ppm

Weather: Sunny, 63 degrees

slight breeze

Sampled By: Konvalin / Kieler

WELL PURGING

PURGE DATE: 4/16/14 WATER DEPTH/TD: (ft. BTOC): 5.175 14.925 Date: 4/16/14 Time: 1525

Purge Time

Start 1525
 Stop 1549
 Total elapsed 24 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/16/2014

Well Purge Volume: _____

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1534	-	16.52	6.03	1.437	16.7	2.01	9	-	-	-	-
1539	-	16.23	5.56	1.438	6.0	0.47	33.3	-	-	-	-
1544	-	15.99	5.55	1.437	5.86	0.27	29	-	-	-	-
1549	-	15.94	5.52	1.438	6.40	0.33	32.9	-	-	-	-

.66 gal

Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

DTW

6.67 @ 1532

pump rate decreased for VOCs and EDBs and then returned to initial rate for metals and SVOCs

Sample Date: 4/16/14

5.975 @ 1541

6.15 @ 1546

6.425 @ 11639 - final

Approx Pump Depth: 10 feet bgs

11.35x.163=1.85

Start: 1558

Sample Time: 1558 Finish: 1639

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW4	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW4	2-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW4	3-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW4	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	_____
Duplicate	FD	_____
Equipment Blank	EB	_____
Trip Blank	TB	_____

Additional comments: North Notch Marked

Riser height 2'8"

Casing Height 2'10"

Recorded by: Lauren Konvalin

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery		Arrival time 1115		Well Number: MW-5	
Well Type: _____					
Well Material: PVC		Well Integrity: Rusted casing, stick up			
Well casing monitoring readings: Water in protective casing, breathing zone: 0.1 ppm, wellhead: 1.0ppm, ground: 0.1 ppm					
Weather: Overcast, 57 degrees		Sampled By: Konvalin / Kieler			
slight breeze					

WELL PURGING					
PURGE DATE: 4/17/14	WATER DEPTH/TD: (ft. BTOC): 2' 7.5" 14' 5"	Date: 4/17/14	Time: 1118		

Purge Time

Start 1130

Stop 1158

Total elapsed 20 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT											
Time of last calibration: 4/17/2014				Well Purge Volume: -							
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1133	-	16.36	6.94	1.357	14	3.56	-72.6	-	-	-	-
1138	-	16.15	6.92	1.363	17.6	0.42	-88.6	-	-	-	-
1143	-	16.06	6.78	1.365	16.3	0.29	-80.4	-	-	-	-
1148	-	16.13	6.69	1.366	17.8	0.28	-76.3	-	-	-	-
1153	-	16.05	6.72	1.368	11.7	0.25	-83.1	-	-	-	-
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>1 gal</div> <div>Total Purge Volume</div> <div>**Individual volumes, not cumulative, in gallons</div> </div>											

WELL SAMPLING	
<p>DTW</p> <p>35.75" @ 1137</p> <p>37" @ 1141 - pump rate decreased for VOCs and EDBs and then returned to initial rate for metals and SVOCs</p> <p>35.75" @ 1146</p> <p>30.5" @ 1229</p> <p>Approx Pump Depth: 10 feet bgs</p>	<p>Sample Date: 4/17/14</p> <p>Start: 1200</p> <p>Sample Time: 1200 Finish: ####</p> <p style="font-size: small;">Indicate Start/Finish times only if sample times are greater than 15 minutes.</p>

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW5	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW5	2-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW5	3-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW5	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES			Additional comments: North notch marked
TYPE	SAMPLE ID	C-of-C	
Ambient Blank	AB		Riser Height: 2'4"
Duplicate	FD		Casing Height: 2'6.75"
Equipment Blank	EB		
Trip Blank	TB		

Recorded by: Lauren Konvalin

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Arrived 1313

Well Number: MW-6

Well Type:

Well Material: PVC 2"

Well Integrity: New install, new pad

Well casing monitoring readings: 60.2 inch wellhead; 0.0 Breathing zone, 0.0 inch ground.

Weather: 57 degrees, clear

wind

Sampled By: M Thompson / Arthur

WELL PURGING

PURGE DATE: 4/15/14

WATER DEPTH/TD: (ft. BTOC): 5.72 15.15
1.54

Date: 4/15/14 Time: 1320

Purge Time

Start 1604 delay due to pump rate

Stop 1625

Total elapsed minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/15/2014		Well Purge Volume: -									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor) DTW
1331	-	17.23	7.32	0.804	10.6	1.53	-	-	-	-	6.55
1340	-	17.21	6.84	0.817	10.1	0.64	-	-	-	-	6.87
1345	-	16.94	6.72	0.827	10.0	0.45	-	-	-	-	7.05
1350	-	17.06	6.69	0.984	9.9	0.35	-	-	-	-	-
1355	-	16.92	6.77	0.859	9.8	0.32	-	-	-	-	7.2

1 gal

Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

Approx Pump Depth: 11 feet bgs

7.40 DTW after completion

slight hydrocarbon odor

Sample Date: 4/15/14

Start: 1326

Sample Time: 1400 Finish: ####

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW6	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW6	2-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW6	3-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW6	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments: 33 1/2 well square monument

30 1/4 top of square monumnet

OPR not collected

Recorded by: Jamie Thompson

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Arrived 1100

Well Number: MW-7

Well Type:

Well Material: PVC 2"

Well Integrity: Good

Well casing monitoring readings: 0.0 breathing zone; 0.0 ????; 0.0 ground

Weather: clear, 53 degrees

Sampled By: Thompson / Arthur

WELL PURGING

PURGE DATE: 4/15/14 WATER DEPTH/TD: (ft. BTOC): 7.62 22.8 Date: 4/15/14 Time: 1106

7.62	PID	0.00
22.8 2.5 gallons	?	0.0
	?	0.0

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

Purge Time

Start 1106 delay due to pump rate
 Stop 1136
 Total elapsed 30 minutes

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/15/2014		Well Purge Volume: -									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1116	0.25	16.63	6.2	0.331		1.1	25.2	-	-	-	8.05
1126	0.5	16.56	2.05	0.33	clear	1.05	29.9	-	-	-	8.15 -pump
1131	1	16.74	6.05	0.332		0.92	22.1	-	-	-	8.15
1136	1.25	16.8	6.01	0.335	7.93	0.9	27.6	-	-	-	8.15
	1.25 gal	Total Purge Volume **Individual volumes, not cumulative, in gallons									

WELL SAMPLING

Approx Pump Depth: 18 feet bgs

Sample Date: 4/15/14

Start: 1106

Sample Time: 1138 Finish: 1138

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW7	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW7	2-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW7	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW7	2-500 ml glass or poly	TAL 6020A HG 7040A - 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments:

Recorded by: Jamie Thompson

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery Arrived **115** Well Number: **MW-8**

Well Type: MW

Well Material: PVC Well Integrity: Rusty casing well pad intact

Well casing monitoring readings: PID readings; breathing zone 0.0 ppm; well head 0.0 ppm, ground 0.0 ppm

Weather: sunny 60 degrees, humidity 37 percent

wind 32 mph Sampled By: Walden / Konvalin

WELL PURGING

PURGE DATE: 4/15/14 WATER DEPTH/TD: (ft. BTOC): 8.41 18.98 Date: 4/15/14 Time: 125

hard bottom
1.77 gal 1 gal/33 min

Purge Time

Start 147 delay due to pump rate
Stop 220
Total elapsed 33 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
2" sched 40 = .617 Liters/ft.
3/8" OD Tubing = .028 ml./ft.
1/4" OD Tubing = .015 ml./ft.
1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/15/2014		Well Purge Volume: -									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
150	-	16.57	5.94	0.417	25.5	1.49	213.9	-	-	-	clear no odor
155	5 min	16.8	5.68	0.419	17.2	0.57	232	-	-	-	clear no odor
200	5 min	17.04	5.63	0.422	21.7	0.81	240.8	-	-	-	clear no odor
205	5 min	16.84	5.58	0.462	14.5	0.8	245.2	-	-	-	clear no odor
210	5 min	16.99	5.55	0.555	11.2	0.73	244.3	-	-	-	
215		17.08	5.56	0.587	9.88	1.78	238.4	-	-	-	
	1 gal	Total Purge Volume		**Individual volumes, not cumulative, in gallons							

WELL SAMPLING

DTW 1419 collected WFBI at MW8 location

8.41 @ 149

8.42 @ 155

8.42 @ 200

8.43 @ 205 pump turned down slightly

8.42 @ 210

Approx Pump Depth: 14 feet bgs

Sample Date: 4/15/14

Start: 215

Sample Time: 222 Finish: -

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW8	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW8	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW8	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW8	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments: Top of Riser: 31.5

Top of protective casing: 2.95

North marked yes

Recorded by: Susan Walden

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Well Number: **MW-9**

Well Type:

Well Material: PVC

Well Integrity: New (stick up)

Well casing monitoring readings: 39" from concrete riser, 46.5" from GL to Riser, 43" from concrete to TOC (protective)

Weather: overcast/cool

little wind

Sampled By: VanDyke & Arthur

WELL PURGING

PURGE DATE: 4/17/14 WATER DEPTH/TD: (ft. BTOC): 3.8' 23.5' Date: 4/17/14 Time: 830
well volume = 3.2 gal

Purge Time

Start 835
Stop 1025
Total elapsed 120 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
2" sched 40 = .617 Liters/ft.
3/8" OD Tubing = .028 ml./ft.
1/4" OD Tubing = .015 ml./ft.
1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: _____			Well Purge Volume: _____									Comments (e.g., color, odor)	DTW
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)			
0835	.01										Increased purge rate at 0840	3.95	
0845	0.5	16	5.38	0.166	72.5	0.71	69.7				v. slight odor	4.70	
0850	0.5	16.07	5.38	0.173	52.3	0.56	64.6				no odor (decreased rate)	4.76	
0855	0.25	16.11	5.32	0.175	49.8	0.49	66.1				no odor	4.8	
0900	0.25	16.17	5.44	0.187	43.1	0.42	54.7				no odor	4.85	
0905	0.25	16.19	5.4	0.2	38.1	0.35	59.2				no odor	4.90	
0910	0.25	16.23	5.41	0.206	32.0	0.35	56.5				no odor	4.95	
0915	3.2	16.2	5.53	0.224	27.3	0.31	46.5				no odor	4.95	
0920	0.8	16.24	5.5	0.229	23.4	0.31	46.5				no odor	4.95	
0925	0.35	16.28	5.53	0.233	23.2	0.29	45.9				no odor	5.00	
0930	0.35	16.28	5.59	0.251	23.0	0.28	45.9				no odor	5.00	
1025	STOP PURGE	Total Purge Volume = 3.2 gal + 3 sample Vol.											

3.2 gal

Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

Approx Pump Depth: 12 feet bgs

1026

DTW 4.91

Sample Date: 4/17/14

Start: 0940

Sample Time: 0940 Finish: 1025

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW-9	2 1-liter amber	SW 846 8270D	4°C	MW-9	X	-
MW-9	2-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	MW-9	X	-
MW-9	3-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	MW-9	X	-
MW-9	2-500 ml glass or poly	TAL 6020A Hg 7040A/7041A	4°C, HN03	MW-9	X	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments:

Recorded by: James Van Dyke

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery Well Number: **MW-10**

Well Type: _____

Well Material: PVC Well Integrity: Surface mount 2'x2' concrete pad

Well casing monitoring readings: _____

Weather: Partly cloudy/sunny

Little wind from SE

Sampled By: VanDyke & Arthur

WELL PURGING

PURGE DATE: 4/17/14 WATER DEPTH/TD: (ft. BTOC): 4.23 20.22 Date: 4/16/14 Time: 1512

Purge Time

Start 1527
Stop 1645
Total elapsed 78 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
2" sched 40 = .617 Liters/ft.
3/8" OD Tubing = .028 ml./ft.
1/4" OD Tubing = .015 ml./ft.
1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/17/2014		Well Purge Volume: -										
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	DTW
1527	<0.1	-	-	-	-	-	-	-	-	-	Odor present (sweet gas like odor)	4.25
1537	0.4	17.14	7.69	1.113	62.1	0.84	-29.9	-	-	-	increased purge rate	4.51
1542	0.3	16.92	7.59	1.12	37.9	0.65	-27.9	-	-	-	no odor	4.52
1547	0.3	16.6	7.47	1.119	29.7	0.51	-24.1	-	-	-	no odor	4.57
1552	0.3	16.34	7.46	1.11	23.5	0.55	-19.6	-	-	-	odor present (strong)	4.57
1557	0.3	16.75	7.35	1.085	18.5	0.57	-12.6	-	-	-	no odor	4.62
1602	0.3	16.78	7.34	1.07	18.7	0.59	-12.6	-	-	-	oder presnt	4.62
1607	0.3	16.76	7.31	1.072	15.1	0.57	-12.3	-	-	-	slight sheen on purgenater	4.62
1615	0.3	16.83	7.29	1.078	24.26	0.52	-14.7	-	-	-	odor present	4.63
1617	slowed purge rate											
1628	sped (increased) purge rate											
	2.5	Total Purge Volume **Individual volumes, not cumulative, in gallons										

WELL SAMPLING

Approx Pump Depth: 12 feet bgs

Sample Date: 4/16/14

Start: 1617

Sample Time: 1617 Finish: 1645

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW10	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW10	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW10	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW10	2-500 ml glass or poly	TAL 6020A Hg 7040A/7041A	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	_____
Duplicate	FD	_____
Equipment Blank	EB	_____
Trip Blank	TB	_____

Additional comments: _____

Recorded by: James Van Dyke

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery

Well Number: **MW-11**

Well Type:

Well Material: PVC

Well Integrity: New (stick up)_

Well casing monitoring readings: TC to Concrete: 44", Inner TC to GL: 52", GL to Riser: 47"

Weather: overcast

S wind @ 5-10 mph

Sampled By: VanDyke and Arthur

WELL PURGING

PURGE DATE: 4/17/14 WATER DEPTH/TD: (ft. BTOC): 3.66 23.45 Date: 4/17/14 Time: 1130

Purge Time

Start 1135
 Stop 1255
 Total elapsed 80 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/17/2014			Well Purge Volume: 2.4									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	DTW
1136	<0.1	-	-	-	-	-	-	-	-	-	Clear - no odor	8.72
1146	0.5	16.29	5.58	0.185	18.3	3.24	80.9	-	-	-	Clear - no odor	8.80
1151	0.25	16.29	5.5	0.183	17.3	2.99	81.1	-	-	-	Clear - no odor	8.81
1156	0.25	16.2	5.46	0.18	20.6	2.96	81	-	-	-	Clear - no odor	8.81
1201	0.25	16.2	5.42	0.18	20.8	2.74	82.3	-	-	-	Clear - no odor	8.81
1206	0.25	16.25	5.43	0.186	20.3	2.69	78.8	-	-	-	Clear - no odor	8.81
1211	0.25	16.35	5.43	0.194	19.7	2.66	77.1	-	-	-	Clear - no odor	8.82
1216	2.5	16.38	5.42	0.191	20.3	2.48	79	-	-	-	Clear - no odor	8.82
1221	0.25	16.44	5.41	0.19	20.3	2.68	78.3	-	-	-	Clear - no odor	8.82
1226	0.25	16.49	5.4	0.193	15.0	2.48	80	-	-	-	Clear - no odor	8.82
1231	0.25	16.55	5.4	0.194	13.7	2.57	80	-	-	-	Clear - no odor	8.82

5

Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

Stop purge @ 1255

DTW 8.75' @ 1256

Approx Pump Depth: 12 feet bgs

Sample Date: 4/17/14

Start: 1232

Sample Time: 12.32 Finish: 1255

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW-11	2 1-liter amber	SW 846 8270D	4°C	MW-11	X	-
MW-11	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	MW-11	X	-
MW-11	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	MW-11	X	-
MW-11	2-500 ml glass or poly	TAL 6020A Hg 7040A/7041A	4°C, HN03	MW-11	X	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	_____
Duplicate	FD	_____
Equipment Blank	EB	_____
Trip Blank	TB	_____

Additional comments: _____

Recorded by: James Van Dyke

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery		Arrived 1544		Well Number: MW-12							
Well Type: MW											
Well Material: PVC 2"		Well Integrity: New install, new pad									
Well casing monitoring readings:		PID readings; breathing zone 0.0 ppm; well head 0.1 ppm, ground 0.0 ppm									
Weather: sunny, 60 degrees											
wind		Sampled By: Walden & Konvalin									
WELL PURGING											
PURGE DATE: 4/15/14		WATER DEPTH/TD: (ft. BTOC): 4.975 23.6		Date: 4/15/14 Time: 1600							
		soft 3.04 gal									
Purge Time											
Start 1604 delay due to pump rate											
Stop 1625											
Total elapsed minutes											
FIELD PARAMETER MEASUREMENT											
Time of last calibration: -		Well Purge Volume: 3.04									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1604	-	16.43	4.8	0.447	3.07	1.92	221.3	-	-	-	
1611	-	16.75	4.27	0.461	4.78	0.77	259.1	-	-	-	
1616	-	16.54	4.27	0.463	3.36	0.72	258.4	-	-	-	
1621	-	16.44	4.2	0.465	2.34	0.66	254.9	-	-	-	
	.66 gal	Total Purge Volume		**Individual volumes, not cumulative, in gallons							
WELL SAMPLING											
DTW											
5.47 @ 1606											
5.41 @ 1615											
5.39 @ 1619											
5.3 @ 1625											
5.1 @ 1713 final											
Approx Pump Depth: 15 feet bgs											
Sample Date: 4/15/14 Start: 1625 Sample Time: 1604 Finish: 1625 <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small>											
Control No.	Volume/Cont.	Analysis Requested		Preserv.	Sample Location ID		QC?	Comments			
MW12	2 1-liter amber	SW 846 8270D		4°C	-		-	-			
MW12	3-40ml glass vials with Teflon septa	EPA 504.1		4°C, Na2S2O3	-		-	-			
MW12	2-40ml glass vials with Teflon septa	SW846 8260C		4°C, HCl	-		-	-			
MW12	2-500 ml glass or poly	TAL 6020A Hg 7040A/ 7041A Metals		4°C, HN03	-		-	-			
QUALITY CONTROL SAMPLES											
TYPE	SAMPLE ID		C-of-C	Additional comments: Recorded by: Susan Walden							
Ambient Blank	AB										
Duplicate	FD										
Equipment Blank	EB										
Trip Blank	TB										

Gregg County Refinery							Well Number: MW-13					
Well Type:												
Well Material: PVC			Well Integrity: New									
Well casing monitoring readings:												
Weather: Mostly cloudy												
(in shade) south wind			Sampled By: JV & LA									
WELL PURGING												
PURGE DATE: 4/16/14			WATER DEPTH/TD: (ft. BTOC): 4.23 23.18				Date: 4/16/14			Time: 1245		
<div style="float: right; border: 1px solid black; padding: 5px; width: fit-content;"> Conversion Factors 2" sched. 40 = .163 gal./ft. 2" sched 40 = .617 Liters/ft. 3/8" OD Tubing = .028 ml./ft. 1/4" OD Tubing = .015 ml./ft. 1 Gallon = 3.7854 Liters </div>												
Purge Time												
Start 1300												
Stop 1402												
Total elapsed 62 minutes												
FIELD PARAMETER MEASUREMENT												
Time of last calibration: 4/16/2014			Well Purge Volume: 3.08									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)	DTW
1300	<0.1	-	-	-	-	-	-	-	-	-	No Odor	4.21
1310	0.4	17.94	7.12	0.479	13.3	0.8	-15.4	-	-	-	Clear - no odor	4.50
1315	0.4	18.01	7.04	0.48	10.0	0.63	-12	-	-	-	Clear - no odor	4.50
1320	0.4	17.98	6.92	0.481	8.62	0.48	0	-	-	-	Clear - no odor	4.50
1325	0.4	18.08	6.89	0.479	8.38	0.4	4	-	-	-	Clear - no odor	4.52
1330	0.4	18.04	6.94	0.479	6.12	0.35	-1.1	-	-	-	Clear - no odor	4.52
												4.52
											DTW after stop purge	4.52
	2.0 gal	Total Purge Volume		**Individual volumes, not cumulative, in gallons								
WELL SAMPLING												
Stop purge @ 1255												
DTW 8.75' @ 1256												
Approx Pump Depth: 15 feet bgs												
<div style="border: 2px solid black; padding: 10px; float: right; width: fit-content;"> Sample Date: 4/16/14 Start: 1335 Sample Time: 1335 Finish: 1400 <small>Indicate Start/Finish times only if sample times are greater than 15 minutes.</small> </div>												
Control No.	Volume/Cont.	Analysis Requested		Preserv.	Sample Location ID		QC?	Comments				
	2 1-liter amber	SW 846 8270D		4°C								
	2-40ml glass vials with Teflon septa	EPA 504.1		4°C, Na2S203								
	3-40ml glass vials with Teflon septa	SW8015B (TPH-DRO)		4°C, HCl								
	2-500 ml glass or poly	TAL Mercury/Metals		4°C, HN03								
QUALITY CONTROL SAMPLES												
TYPE	SAMPLE ID		C-of-C	Additional comments: Well volume = 3.08 gal								
Ambient Blank	AB			TC to concrete = 44 inches								
Duplicate	FD			Inner TC to GL = 52 inches								
Equipment Blank	EB			GL to risers = 47 inches								
Trip Blank	TB			Recorded by: James Van Dyke								

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery **Arrival Time:** **Well Number: MW-15**

Well Type:

Well Material: PVC

Well Integrity: Flushmount

Well casing monitoring readings:

Weather: Overcast, 54 degrees

Sampled By: LK/PK

WELL PURGING

PURGE DATE: 4/17/2014 **WATER DEPTH/TD:** (ft. BTOC): 27.5", 18' 1.75" **Date:** 41746 **Time:** 913

Purge Time

Start 918

Stop 936

Total elapsed 20 minutes

breathing zone: 0.1

wellhead 14.2

ground: 0.4

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/17/2014

Well Purge Volume: -

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
920	-	18.27	5.22	0.576	6.56	3.5	128.5	-	-	-	-
925	-	18.36	5.51	0.691	7.01	2.89	111.1	-	-	-	-
930	-	18.5	5.6	0.698	7	2.73	107.2	-	-	-	-
935	-	18.52	5.64	0.708	7.9	2.65	106.2	-	-	-	-
	1 gal	Total Purge Volume **Individual volumes, not cumulative, in gallons									

WELL SAMPLING

3'2.25" @ 0923

4'1.25" @0937 - pump rate reduced

4'5" @ 1007

Approx Pump Depth: 11 feet bgs

Sample Date: 4/17/2014

Start: 940

Sample Time: 940 Finish: 1006

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW-15	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW-15	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW-15	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW-15	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments:

Recorded by: lauren konvalin

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery **Arrival Time: 1020** **Well Number: MW-16**

Well Type:

Well Material: PVC

Well Integrity: New Well, Stick up

Well casing monitoring readings: Breathing zone: 0 ppm, wellhead: 10.4 ppm, ground: 0.1 ppm

Weather: Overcast, 54 degrees

Sampled By: Lauren Konvalin

WELL PURGING

PURGE DATE: 4/16/2014 **WATER DEPTH/TD: (ft. BTOC):** 7.25 12.125 **Date:** 4/16/2014 **Time:** 1030

Purge Time

Start 1038

Stop 1057

Total elapsed 19 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/16/2014 Well Purge Volume: 2.59

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
1040	-	17.97	6.64	0.405	0.87	2.61	-33.2	-	-	-	-
1045	-	17.63	6.33	0.402	1.85	0.55	-42.9	-	-	-	-
1050	-	17.75	6.33	0.399	1.43	0.55	-38	-	-	-	-
1055	-	17.68	6.32	0.395	0.97	0.52	-38.1	-	-	-	-
	43 gal	Total Purge Volume **Individual volumes, not cumulative, in gallons									

WELL SAMPLING

DTW Pump rate decreased for VOA's and EDB's

8.2 @ 1045 Pump rate returned to initial for SVOC's and Metals

8.175 @ 1053

8.025 @ 1130 final

Approx Pump Depth: 15 feet bgs

Sample Date: 4/16/2014

Start: ####

Sample Time: 1101 Finish: ####

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW-16	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW-16	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW-16	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW-16	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments:

Recorded by: Konvalin

GROUNDWATER SAMPLING DATA SHEET

Gregg County Refinery **Arrival Time: 0802** **Well Number: MW-17**

Well Type: _____

Well Material: PVC Well Integrity: _____

Well casing monitoring readings: _____ Breathing zone: 0 ppm, wellhead: 1.6 ppm, ground: 0 ppm

Weather: sunny, 45 degrees _____

slight breeze _____

Sampled By: Lauren Konvalin

WELL PURGING

PURGE DATE: 4/16/2014 **WATER DEPTH/TD:** (ft. BTOC): 7.675 23.3 ft **Date:** 4/16/2014 **Time:** 810

Purge Time

Start 841 _____

Stop 919 _____

Total elapsed 38 _____ minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.
 2" sched 40 = .617 Liters/ft.
 3/8" OD Tubing = .028 ml./ft.
 1/4" OD Tubing = .015 ml./ft.
 1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration: 4/16/2014		Well Purge Volume: -									
Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
841	-	16.3	6.52	0.776	2.03	1.06	-27.2	-	-	-	-
848	-	16.41	6.47	0.789	1.17	0.93	-41.6	-	-	-	-
853	-	16.65	6.45	0.782	0.84	0.67	-48.3	-	-	-	-
858	-	16.52	6.44	0.787	1.25	0.7	-59.3	-	-	-	-
903	-	16.61	6.42	0.805	0.7	1.06	-66.7	-	-	-	-
908	-	16.62	6.38	0.813	0.66	0.75	-66.8	-	-	-	-
913	-	16.73	6.38	0.813	0.77	0.73	-65.7	-	-	-	-
1 gal		Total Purge Volume		**Individual volumes, not cumulative, in gallons							

WELL SAMPLING

DTW Pump rate decreased for VOA's and EDB's

7.67 @ 0831 Pump rate returned to initial for SVOC's and Metals

8.19 @ 0855

8.25 @ 1130 final

8.325 @ 0907

8.34 @ 0953 final Approx Pump Depth: 15 feet bgs

Sample Date: 4/16/2014

Start: 920

Sample Time: 920 Finish: 953

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW-17	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW-17	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW-17	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW-17	2-500 ml glass or poly	TAL 6020A HG 7040A / 7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	_____
Duplicate	FD	_____
Equipment Blank	EB	_____
Trip Blank	TB	_____

Additional comments: _____

Recorded by: Konvalin

GROUNDWATER SAMPLING DATA SHEET**Gregg County Refinery****Well Number: MW-18**

Well Type:

Well Material: PVC

Well Integrity: New install new pad completion inspection

Well casing monitoring readings: PID readings; breathing zone 0.0 ppm; well head 0.1 ppm, ground 0.0 ppm

Weather: 46 degrees, sunny

wind 2 mph

Sampled By: Kieler & Konvalin

WELL PURGING**PURGE DATE:** 4/15/14 **WATER DEPTH/TD: (ft. BTOC):** 6.45" 23.3 **Date:** 4/15/14 **Time:** 944

purge volume: 2.74 gal

purge rate: 300nw/min

Purge Time

Start 951 delay due to pump rate

Stop 1148

Total elapsed 57 minutes

Conversion Factors

2" sched. 40 = .163 gal./ft.

2" sched 40 = .617 Liters/ft.

3/8" OD Tubing = .028 ml./ft.

1/4" OD Tubing = .015 ml./ft.

1 Gallon = 3.7854 Liters

FIELD PARAMETER MEASUREMENT

Time of last calibration:

Well Purge Volume:

Time of Measurement	Vol. ** Purged	Temp °C	pH	Cond. (ATC) (mMhos/cm)	Turbidity mg/L	D. O. (mg/L)	ORP (eV)	Fe ²⁺ (mg/L)	Sulfate (mg/L)	Nitrite (mg/L)	Comments (e.g., color, odor)
10.23	1.2	17.9	4.94	1.634	2.5	1.04	154.3				clear no odor
10.45	0.7	18.35	5	1.632	1.83	1.08	167.1				clear no odor
10.49	0.7	18.46	5.01	1.632	1.60	1.06	167.9				clear no odor
10.52	2.2	18.42	5.01	1.633	2.09	1.05	170.2				clear no odor

3 Total Purge Volume

**Individual volumes, not cumulative, in gallons

WELL SAMPLING

DTW

poly in well

VOC

flowthrough - watergoal only

7.23 @ 1010

silicon to pumo

EDB

sample directly from tube

7.59 @ 1101

SVOC

7.68 @ 1220 final

metals

Approx Pump Depth: 15 feet bgs

Sample Date: 4/15/14

Start: 1150

Sample Time: 1150 Finish: 1220

Indicate Start/Finish times only if sample times are greater than 15 minutes.

Control No.	Volume/Cont.	Analysis Requested	Preserv.	Sample Location ID	QC?	Comments
MW18	2 1-liter amber	SW 846 8270D	4°C	-	-	-
MW18	3-40ml glass vials with Teflon septa	EPA 504.1	4°C, Na2S2O3	-	-	-
MW18	2-40ml glass vials with Teflon septa	SW846 8260C	4°C, HCl	-	-	-
MW18	2-500 ml glass or poly	TAL 6020C Hg 7040A /7041A Metals	4°C, HN03	-	-	-

QUALITY CONTROL SAMPLES

TYPE	SAMPLE ID	C-of-C
Ambient Blank	AB	
Duplicate	FD	
Equipment Blank	EB	
Trip Blank	TB	

Additional comments:

Recorded by: Konvalin